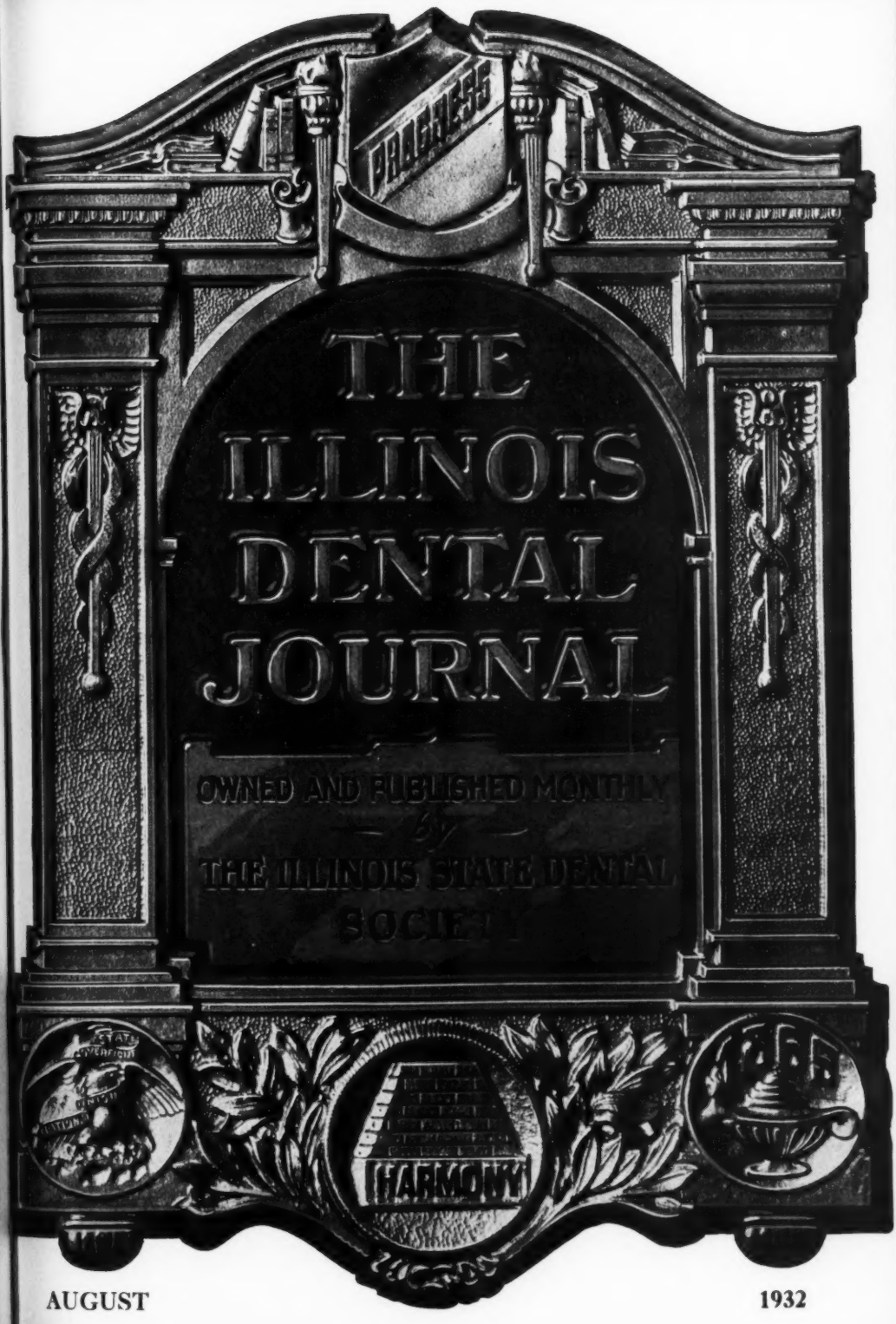
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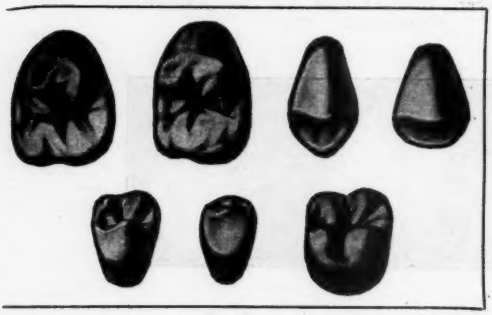

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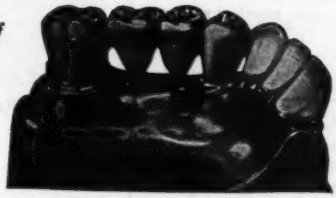

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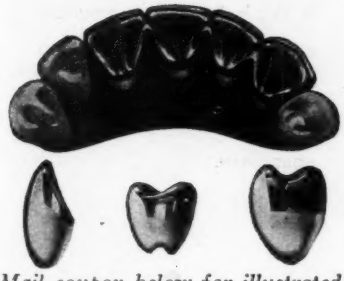

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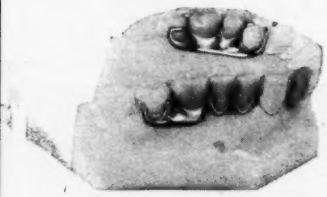

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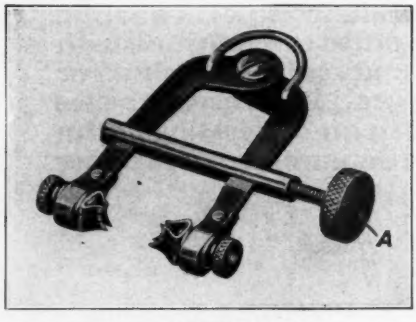

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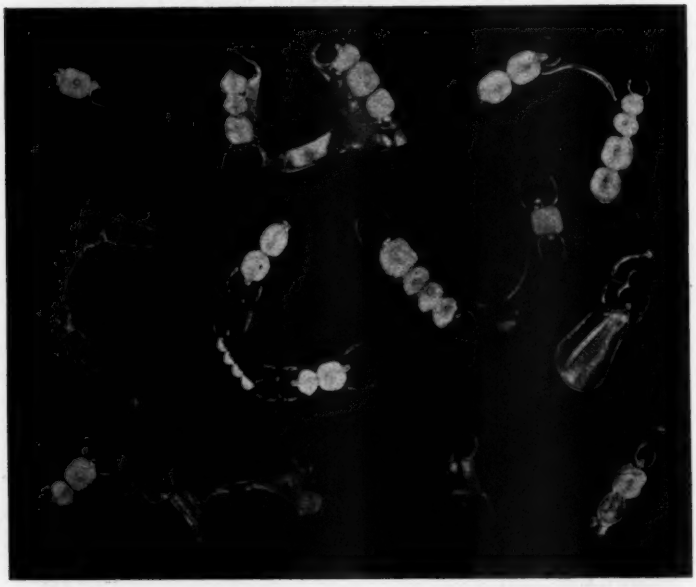

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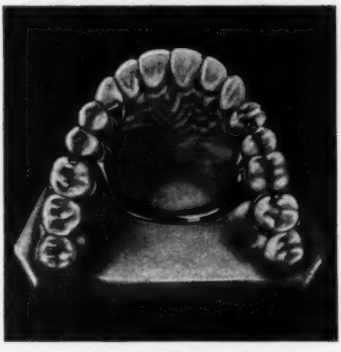

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(To be continued)

Owen E Cassill, D.D.S.
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THE ILLINOIS DENTAL JOURNAL

Volume I August, 1932 Number 12

INFECTIONS AND TUMORS OF THE ORAL AND CIRCUMORAL SURFACES*

CLEVELAND WHITE, M. D., *Chicago*

Asst. Professor of Dermatology, Northwestern University College of Medicine.

IT IS quite necessary for every physician to be well versed in the diagnosis and management of the many diseases of the oral cavity. The oral dental-surgeon has made remarkable studies in the successful treatment of surgical conditions of the gums and of the difficult accessible areas of the oral cavity. As the skin and the mucous membranes of the mouth are embryologically analogous structures, the dermatologist is sought many times to assist in the diagnosis and treatment of diseases of the readily accessible areas of the mucous membranes of the mouth and the adjacent areas.

It may be stated here that the past decade has witnessed a decided change in dental educational thought (Schroff). The trend of the change has been to advance dentistry from a "mechanic" to a "biologic" science, and more attention is being given to the mouth in its relations to the body. It is now recognized that some dermatological syndromes may be manifested early in the mouth; furthermore, some conditions are confined exclusively to such areas.

Since a previous communication, I have seen many more cases of special interest to the dentist and the physician. These are worthy of review to you because of their value in diagnosis and in emphasizing the interdependence between medicine and dentistry. Also, some of these diseases are a source of potential danger from infection to the dentist himself, e. g., fungus and early infectious syphilitic lesions. Then again the dentist is often in the first trenches of warfare as in cancer.

I. SUPERFICIAL FUNGUS INFECTIONS OR THRUSH

Infections of the oral mucosa with fungi are being recognized more and more, although it has been known for a long time to cause thrush in the mouths of sucklings. The most common causative organism is one of the monilia group which can be recognized microscopically and can be grown in culture (Sabouraud's media). This type of cases is strikingly prone to diagnostic errors, especially in the medical field.

Case 1. A man ++ was seen who had white areas in i is mouth for nine years and been under medical treatment for four years for supposed leukoplakia. He had been informed that he might have had leukoplakia due to syphilis, but his history and serology had been negative. The fear of cancer from persistent

*Read before the Illinois State Dental Society at the Sixty-eigh h Annual Convention, Springfield, May 12, 1932.

mouth lesions had worried him a great deal. After four years of treatment of various types the patient himself rather doubted the diagnosis.

When observed several months ago, he had elevated whitish areas on the buccal surfaces. These were of the coagulated milk appearance rather than the glistening white color of leukoplakia. Furthermore, small fragments could be easily detached—an unheard of thing in leukoplakia. Microscopical examination of several such fragments after digestion with 10 percent potassium hydroxide revealed many hyphae and spores characteristic of the monilia group of fungi. Five percent aqueous solution of gentian violet cleared the areas completely in 10 days' time.

Case 2. A dentist, aged 32, consulted me for an eczematoid eruption of his right index finger which had been present for nine months, much to his professional and personal discomfort. He stated that the area had been considered a dermatitis venanata due to novocaine. In brief, monilia fungi were grown on culture and treatment for this type of ringworm produced a rather rapid cure. The source of infection in this and several allied cases was considered to be in the mouth of some patient who had had a mild thrush. Cutaneous infections of the hands of dentists and physicians can be a serious economic handicap.

Case 3. A U. S. Naval medical officer, 55, had had discrete whitish accumulations on the dorsum of the tongue for several months, producing mild burning and occasional discomfort. Examination of the detailed fragments microscopically showed fungi of monilia group. Gentian violet and radium locally had practically cleared the condition when he was transferred to an eastern station. He had difficulty persuading several medical men there that he really had thrush, as they stated that it never occurred in adults.

II. SYPHILIS

The primary infection, the chancre, can well be around the mouth and occasionally even inside the mouth. The chancre and the mucous patches of secondary syphilis are teeming with spirochetal pallida and are the cause of many innocently acquired syphilitic infections in professional people as dentists, physicians and nurses. The chancre appears on the lip as an eroded elevated papule having a distinctly hard cartilaginous feel. A painless giant unilateral adenitis soon ensues and becomes a decided and constant characteristic clinical finding—typical of extragenital chancres.

Case 4. A young man of 22 had a large eroded papule on the right lower lip which had been present several weeks, having a discrete painless but pronounced right cervical adenopathy. Repeated darkfield examinations of the lesion and from aspirated material of the lymph nodes were negative for luetic spirochetes, but the blood serology was positive. The lesions rapidly disappeared under anti-leutic treatment.

The mucous patches of secondary syphilis occur as round or oval areas which have resulted from eroded luetic papules and are covered with a grayish exudate. While they can occur on any part of the oral mucous membrane, they are usually found on the commissures of the lips, on the buccal surfaces and on the tonsils. Many of these are mistaken for trench mouth or Vincents'

stomatitis. Mucous patches, especially if recurrent, are extremely infectious and are the cause of many extragenital infections through kissing. Kissing of babies by affectionate adults other than parents should be prohibited.

Case 5. A young man of 23 was observed in the Dermatological Clinic at the Illinois Eye and Ear Infirmary who had had sores in his mouth for eight weeks, and his wife complained of the same trouble for one week. Both had typical mucous patches and the blood serology was strongly positive.

The tertiary state is manifested by the nodular infiltrate usually called gumma and by leukoplakia. The gumma is a circumscribed rather hard tumor occurring either in the tongue or on the lip—it is sometimes confused with malignancy and tuberculosis. A blood Wassermann should always be taken and a biopsy secured if any doubt at all exists as to the proper diagnosis.

Case 6. A business man of 33 had had a swelling on the lower lip for two years and according to his history had had many X-ray treatments and staphylococcic vaccine injections in that period of time for what had apparently been considered a localized pyogenic cellulitis. When first observed, there was every clinical evidence of it being a gummatous infiltrate, and the blood serology was strongly positive. Of course, it has rapidly disappeared under anti-syphilitic treatment.

Leukoplakia will be dealt with more in detail in taking up precancerous lesions of the mouth—the syphilitic type will be here briefly mentioned.

Case 7. A man of 46 had had silvery glistening patches on his tongue for several years. His blood Wassermann was positive. These patches disappeared completely under treatment, together with total abstinence from tobacco. The experience of most syphilographers is that anti-leutic treatments rarely clear the condition completely.

III. Tumors (Benign)

Several papillomatious types of growths can occur in the mouth, and patients are usually considerably ill at ease until a definite diagnosis is established to rule out any possible cancer. In general, any epithelial growth should be removed by electrothermy to prevent any possible malignant degeneration.

Case 8. A man of 32 had had a pedunculated mass about the size of a small marble occur on the right lower lip after a small scratch which had become infected. It had grown rather rapidly in three weeks' time. It was a classical example of so-called pyogenic granuloma and disappeared rapidly with treatment by radium.

Case 9. A woman of 46 had noticed an enlarged "red" area on the posterior lateral portion of her tongue for some time and gradually it had become slightly painful. Examination showed an enlarged papilla. Enlargment of even a normal papilla may be the forerunner of a cancer, although not really considered a precancerous condition. Treatment with radium caused the area to become much smaller and was a great mental relief to the patient because of her persistent belief that it was cancer.

Case 10. A young woman of 24 noticed a red elevated area about the size of a dime on right side of soft palate. Examination showed a small vascular tumor, an angioma, comparable to a

birth mark in children. These readily disappear with radium.

Case 11. A man of 52 noticed a rough sensation in the right buccal surface and, upon self-examination, noticed many slightly elevated yellowish discrete areas. Clinically, these are hypertrophied sebaceous glands — so-called Fordyce's disease. It is of no importance and usually no treatment is advised.

Case 12. A man of 62 had several small growths appear in each buccal surface. Palpation revealed small, soft, velvety tumors—easily distinguished at once as mucous retention cysts and easily destroyed with electrothermy.

Case 13. A woman of 56 had a small pedunculated growth with no subjective symptoms just inside the lower lip—it had been gradually enlarging for four months. Clinically it was a small papilloma (confirmed by histological examination) and was completely removed by the electrothermy.

IV. Precancerous Lesions

Any benign growth is, of course, a possible forerunner of malignancy, but the most potential and most important is leukoplakia. Dentists and physicians see this time and again and many lives will be saved from cancer if this condition is recognized early. When a small fissure or ulceration occurs in such an area, clinically, malignancy has already occurred regardless of the findings of a million microscopes.

Leukoplakia consists of glistening thickened areas anywhere in the mouth but usually on the buccal surfaces. It may be of traumatic origin as due to tobacco, jagged teeth, etc., or syphilitic origin—a late stage of syphilis. In any case tobacco should be stopped absolutely and blood drawn for both Wasserman and Kahn tests.

Case 14. A physician, 33, had such an area on each buccal surface. He had stopped smoking and had had a negative Wasserman repeatedly. He had been advised in several clinics to let it alone but, believing that the 1932 practice of medicine does not justify waiting for cancer to come, the areas were mildly treated with electrothemy and completely removed the areas.

Case 15. A woman of 52 noticed several such areas on dorsum of tongue—in fact, noticed first by her dentist. All examination and tests were normal. Stopping smoking soon produced a disappearance of the areas.

Case 16. A man of 46 had an area of leukoplakia on each buccal surface. The area on the right side had just begun to fissure and of course all was destroyed with electrothermy. It may be stated here that radium and X-rays are only mentioned in connection in the treatment of leukoplakia to condemn them. All should stop smoking and have teeth examined and fixed. All residual areas if not too large should be removed with the electrothermy.

V. Cancer

It is needless to take time to recapitulate the late manifestations of cancer preceding death—stress will be laid here and emphasized on the early clinical findings. Let us catch up with the laity who are now getting advance information from medical and dental addresses and pamphlets. If early cancer is recognized (often the opportunity is amply afforded by the unfortunate victims) and properly treated, there will be no

late cancer and hence no deaths. And let it be said here that if electrothermy is primarily used and then let radium and X-ray be used as adjunct treatment, practically every early case can be cured. We must not be "single trackers" and use X-ray and radium to the exclusion of the most important method of all i. e. electrothermy. An unhealed ulcer of four weeks duration in the mouth is clinically cancer provided all other causes as tuberculosis, syphilis, blastomycosis, etc., are ruled out and should be so treated. Bloodgood's opinion is that two weeks is long enough but my opinion is that that is a trifle radical, but it is far better to share Bloodgood's warning and err for the patient's benefit.

A small unhealed fissure which does not heal but becomes slightly undurated is the earliest objective finding. In case of doubt, tissue can be removed and examined histologically (provided the pathologist is well acquainted with cutaneous histopathology). Grading of cancer histologically is desirable but not necessary while still localized. Proper clinical interpretation is usually more important than the microscope.

Case 17. A young male school principal of 29 had had such a small indurated area on his left lower lip for six months which had refused to heal. A small section was removed for histological study by the radio-loop and the rest destroyed at the same time thoroughly by electro-coagulation. Prophylactic x-ray was given to adjacent lymph nodes. The local area has healed completely and has so remained. The section showed squamous-celled epithelioma.

Case 18. A man of 44 had had a small ulcer on the right lower lip for 18 months gradually reaching the size of a quarter inch in diameter. It was localized and was removed with the electrothermy.

Many other interesting cases in a private series of 181 cases observed and treated could be related. Several were fatal because the patient had sought medical attention too late. Where already malignant adenitis has occurred the treatment is distinctly better handled by a surgeon rather than by a dermatologist.

V. Pemphigus

Chronic successive crops of bullae which erode and heal slowly speak in favor of the diagnosis of the very serious and often fatal disease of pemphigus. Being confined to the mouth alone is quite unusual as the cutaneous surfaces are usually rapidly coincidentally involved. However, this possibility must be kept in mind.

Case 19. A woman of 56 had "sores" in her mouth for 3 years. With this history one could suspect pemphigus at once but herpes, erythema multiforme and drug eruptions had to be ruled out. Observation over three months was sufficient to definitely establish such a clinical diagnosis as bullae were seen time and time again on the gums and buccal surfaces. Dr. Macht's phytotoxic test performed by himself was positive for pemphigus. Treatment has so far been of little avail.

VI. Leukemia

This fatal syndrome is rarely manifested by ulcerations in the mouth and nose but one observed will soon be reported by Dr. Gordon B. Fauley and myself from the Norwegian-American Hospital.

Case 20. A man of 59, a proven case

of chronic lymphatic leukemia by blood examination, developed several ulcerations in the mouth, nose and on the face. A histological section was taken and was definite leukemia. Later the lesions almost disappeared but they reoccurred just preceeding his death.

VII. Drug Eruptions

Many oral lesions are due to the ingestion of many drugs in susceptible people and apparently is the cause of many hitherto unexplained cases of stomatitis (Shelmire).

Case 21. A boy of eight was observed for recurrent "sores" on his gums and lips. It was easy to determine that it was caused by phenolphthalein because he had a typical erythema multiforme-like eruption on his arms and legs with bluish-purplish areas on his genitalia. His mother stated that she had given him "exlax."

VIII. Miscellaneous

Case 22. A business man of 28 noticed the appearance of a fine whitish net work on each side of his mouth. Examination showed such to have the thickened areas at the inter sections or so-called nodal points—quite typical of lichen planus, a rather rare skin disease.

Case 23. A woman of 29 had small reddened gums with many shallow discrete ulcers so suggestive of Vincent's infection. Microscopical examination showed the typical Vincent's organisms. Sodium perborate paste was of no avail but 10 per cent sulph arsphenamine in glycerine locally cured it rather promptly.

Case 24. A man of 48 had scaling of lips for several years. He was advised in a clinic in a distant city to have the lower lip amputated to avoid the possibility of cancer. These cases of cheilitis exfolitiva are known to all dermatologists and are of course, benign. A simple borated ointment with the avoidance of direct sunlight has entirely healed the same.

Case 25. A young physician aged 26 had recurrent superficially denuded areas appear on his tongue. So-called geographical tongue is a benign condition but distinctly unpleasant at times. Hot food and tobacco are interdicted.

Case 26. A young man of 27 was first seen with a small ulcerated area on his left lower lip. Its base was ragged and the border was undermined. Clinically such an ulcer was tuberculosis and a section removed for histological study revealed tuberculosis.

BIBLIOGRAPHY

1. Schroff, Joseph: Primary Mouth Manifestations of Skin Diseases. The Journal of Dental Research, 10:219 (April) 1930.

2. Shelmire, Bedford: Certain Diseases of the Oral Mucous Membrane and Vermilion Borders of the Lips. The Southern Medical Journal, 21:169 (March) 1928.

3. Traub, Eugene F.: Syphilis and Diseases Affecting Mucous Membranes of the Mouth. The Urologic and Cutaneous Review, 35, 3, 1931.

4. Fordyce, John A., and McKee, George M.: Disease of the Oral Mucosa. Archives of Dermatology and Syphilology, 13: 601 (May) 1926.

5. Eller, J. J., and Rein, C. R.: Oral Vincent's Infection, Journal of the American Dental Association, 17, 2352 (December) 1931.

7. White, Cleveland: Diseases of the Mucous Membranes of the Mouth. Illinois Medical Journal, February, 1931.

8. White, Cleveland: Cancerous and Pre-cancerous Lesions of the Skin and Mucous Membranes. The Wisconsin Medical Journal, September, 1931.

9. White, Cleveland: Tuberculosis of the Skin and the Mucous Membranes. Illinois Medical Journal, October, 1931.

10. White, Cleveland: Dermatological Aspects of Early Syphilis. Illinois Medical Journal, February, 1930.

11. White, Cleveland: Superficial Fungus Dermatitis ("Ringworm") of the Glabrous Skin—General Aspects and Laboratory Findings in 1,024 Cases with Therapeutic Notes. The Wisconsin Medical Journal, August, 1929.

6. Bloodgood, J. C.: What Every Physician Should Know About Cancer. Journal of the American Medical Association, vol. 88, p. 1142 (April 9) 1927.

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LOCAL ANESTHETIC SOLUTIONS*

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THE administration of anesthetics for the purpose of locally obtunding the sensation of pain in a limited region of the human body is a comparatively recent accomplishment. The first satisfactory anesthesia dates from the discovery of the anesthetic properties of cocain by Karl Koller in 1884; and it is a matter of record that Dr. Halsted of Johns Hopkins University employed a 4 per cent aqueous solution of cocain hydrochlorid in 1885 to anesthetize the inferior alveolar nerve by injecting it with a hypodermic syringe at the mandibular sulcus. For some unexplained reason conduction anesthesia of the mandible was then lost sight of for over twenty years until revived by Guido Fischer in 1908. Cocain hydrochlorid continued to be used extensively by dentists for infiltration anesthesia until Einhorn discovered procain in 1905. Shortly thereafter, because of its great toxicity and its tendency toward habit formation, cocain was abandoned as a local anesthetic by the dentists of America. The discovery of procain, with its relatively mild systemic effects and its profound local anesthetic properties, marked the beginning of a new era and made possible the fulfillment of the promise of painless dentistry to a long suffering public. To Guido Fischer, more than to any other one man, should we give credit for standardizing and popularizing the technic of inducing conductive anesthesia in the structures of the oral cavity.

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The evil effects of pain are too well known to merit discussion. Whether the pain is incident to extraction of teeth, excavation of hypersensitive dentin, or extirpation of dental pulps matters little; the injurious effects are the same. Dentistry has boasted of its ability to make good the promise of painless dentistry until it is now time it puts into practice methods that fulfill its promises. Although local anesthesia is still far from perfection, it stands today as the nearest approach to an answer to the prayer for painless dentistry.

Anesthesia is easy to produce; but the after effects are not uniformly pleasant. Individual variations in both action and reaction are noted. Some soreness and swelling is the rule for a day or two following its use. Occasional post injection signs of edema are observed. They are most common in the infra orbital regions, are accompanied by intense itching, and subside after twenty-four to forty-eight hours. The phenomenon is one of idiosyncracy to novocain and patients who have once experienced it are likely to have the symptoms repeated following subsequent administrations.

The immediate effect of procain is most noticeable on nerve tissue and is that of a true local anesthetic. Various theories of the mechanism of the induction of both general and local anesthesia have been advanced; but to date there is insufficient evidence available to positively substantiate any of them. The most plausible one is the lipoid solvency theory that lecithin, an essential fatty ingredient of nerve tissue, undergoes a

loose physical or chemical union under the influence of the anesthetic substance which lasts for a short time and leaves no symptoms after the anesthetic has been washed from the area by the circulating fluids of the body. In so far as we can determine, the action of local and general anesthetics is very similar. All possess some inherent quality of obtunding pain sensation with great regularity, by direct action on nerve tissue.

It is far more comfortable to perform dental operations under local than general anesthesia; and search for a local anesthetic that is free from objectionable features is still being pursued. An ideal solution should approach, or be identical in osmotic pressure and alkalinity with body fluids, and possess all physico-chemical properties essential for the continuance of cell life over the period the solution is allowed to act on the tissue. It should prevent degradation of epinephrin, and should retain anesthetic potency indefinitely. It should cause rapid, profound and prolonged anesthesia, without after-pain and without local tissue injury.

When simple aqueous procain hydrochlorid solutions are injected into subcutaneous or submucous tissues they set up a localized area of acidosis. This acid condition must be neutralized by the alkaline reserve substances in the body. It is very likely that the large amount of free acid in many of the anesthetic solutions is responsible for a considerable amount of the after-pain, edema, and soreness following local anesthetic injections.

Under present methods of study it is impossible to determine by miscroscopic examination the exact changes which cells undergo when they are acted upon by local anesthetic solutions; because the technic of preparing tissues for examination requires that they be fixed, thinly sectioned, and stained. By the time they have passed through all these steps and are prepared for microscopic examination they have returned to their original state, leaving no discernible evidence of the transitory changes produced by the anesthetic solution.

Red blood cells are the only cells that permit of microscopic study in their living state; as they are visible without being subjected to staining processes. Their structure is similar to other connective tissue cells and although they move freely over each other it is believed that their behavior when immersed in different fluids may be accepted as similar to the behavior of fixed cells of other tissues.

When red blood cells are placed in distilled water they swell rapidly, lose their normal forms, undergo rupture of their walls and disintegrate; releasing their hemoglobin which diffuses in the water. Many years ago physiologists discovered that the addition of salts of sodium and potassium to water in similar proportions to that in blood serum made a solution in which erythrocytes could be immersed without undergoing rapid structural changes. This suggested the necessity of rendering all hypodermic solutions isotonic; and has been made of clinical use in the preparation of local anesthetic solutions.

The blood pressure raising principle of the suprarenal gland is indispensable in local anesthetic solutions. Epinephrin is a very important internal secretion. It has the property of contracting blood vessels by direct stimulation of their muscular coats. It raises blood pressure

by reducing the calibre of the blood vessels and by stimulating the force and frequency of the heart's action. It is Nature's medium for arousing physical reserve and calling out latent energy in times of danger when it is imperative that the individual be rendered capable of preserving his life. It is a physiologic secretion without which an individual weakens and dies within a few days. Epinephrin is liberated in large quantities under the stimuli of fear, anger, or excitement. In such circumstances the vessels of the skin are contracted until the skin appears pale, the blood is forced to the deeper organs and the heart-beats become violent. Pulsations are felt in the temporal regions and throbbing in the head is accompanied by general nervous termors and stimulated cerebration. These symptoms have been experienced by everyone; are characteristic of slight overdosage of epinephrin, and are identical with those from its too rapid absorption from anesthetic solutions. A picturesque illustration of the action of the suprarenal glands in combat has been given by Dr. Louis Berman of Columbia University. His description of what happens when dog meets cat is worthy of repetition.

"An instant excess of adrenalin occurs in the blood of, say, a cat when it is alarmed by the sight of a dog. In that cat, at the image of its hereditary enemy, certain brain cells vibrate. A nerve tract, in use as the line for that particular message in a hundred generations of cats, whirrs its yell to the medulla of the adrenal gland. Through the tiny solitary veins of the glands, an infinitesimal quantity of the reserve adrenalin responds. And with what effect! The blood, that primary medium of life, the precious fluid that is everything, must all, or nearly all, be sent to the firing line, the battle trenches, the brain and muscles, now or never.

"So the blood is drafted from the non-essential industries—from the skin where it serves normally to regulate the heat of the body—from the digestive organs, the stomach and intestines, which must forsooth stop now, since if the organism will die, their last effort of digestion has been done—from the liver and spleen, great chemical factories in normal times, but now of no moment. Besides, should they be wounded, it is better they should be bloodless, and so run the least chance of bleeding to death, or getting infected, for the more tissue there is around, the greater the danger of infection.

"So, like the skin, the liver, which usually holds in its lakes and vessels about a quarter of all the blood in the body, is almost drained and blanched. At the same time, its great storehouses of sugar open their sluices and pour into the blood, increasing its sugar content by about a third because the combustion of sugar is the easiest way of getting energy free in the cells, sugar being the most quickly burned up of all the foods, and so the great food of the muscles and heart.

"The poisons of fatigue, acid products of the contraction of muscles, are antagonized and neutralized by substances formed in the course of the oxidation of the sugar. Adrenalin, too, is directly a fatigue antagonist. It causes the blood to clot faster than under ordinary circumstances. It erects the hair of the animal, and dilates the pupils of the eyes. There is an increase in the apparent size, all of which intimidate the en-

emy, like an Indian's painting of his face blue and green."

Physiologically, the epinephrin is expressed from the suprarenal glands directly into the blood stream and its effect is generalized throughout the body. When solutions of epinephrin are injected hypodermically it is slower to reach the general circulation and its effect is principally local. Its effect in the area where it is deposited is to contract all blood vessels having muscular coats. The flow of fluids into the injected area is immediately checked by the vaso-constrictor action of the epinephrin, resulting in a relative stasis of all fluids in that vicinity. The systemic effect of epinephrin is observed to be proportionate with the rapidity of its injection. Rapid injection of the epinephrin bearing solution gives rise to typical epinephrin stimulation. Slow injection produces marked vaso-constriction in the infiltrated area while the first few drops are expelled; so that the bulk of the solution is retained in the region for a considerable period of time and its release is so gradual that systemic stimulation is unnoticed. There is another factor which aggravates systemic stimulation from epinephrin in anesthetic solutions. Nearly all patients requiring local anesthesia undergo a considerable amount of mental excitement and apprehension at the time the anesthetic is administered and their own suprarenal glands liberate a full physiologic dose of epinephrin in response to that stimulus. Under such conditions even a small additional amount of epinephrin produces an overdosage. This readily explains the phenomenon of epinephrin overstimulation so frequently observed in nervous patients, and its absence in patients of less excitable temperament. Further proof is evident when amytal premedication is given to excitable patients. Under the influence of sedatives, the same individual is not so likely to manifest signs of overstimulation from the administration of local anesthetic solutions containing epinephrin.

Slow injection is urged for the administration of local anesthetic solutions containing epinephrin for three reasons: First, it prevents the development of systemic symptoms; Second, it greatly intensifies the anesthetic effect by confining the active ingredients to a limited area; Third, it prolongs the duration of anesthesia by preventing the anesthetic agents from being washed out of the area by the circulating fluids. Its value in rendering the field of operation bloodless is problematical. While a bloodless field is convenient to work in, post-operative recovery is sometimes hampered in connection with exodontia because of insufficient blood to form a satisfactory clot for protection of the wound.

An anesthetic solution compounded of 2 per cent procain hydrochlorid in a distilled water vehicle rendered isotonic by the addition of sodium and calcium salts, and containing sufficient epinephrin to produce the necessary vaso-constrictor effect, has been accepted for many years as most nearly meeting all requirements.

Only a few years ago it was called to our attention that procain hydrochlorid is a distinctly acid salt, containing uncombined hydrogenions that are injurious to living cells. It has been demonstrated that the anesthetic solutions we have used for years cause destruction of red blood cells within a few minutes when they are immersed in them in a test tube; although the solutions with

the procain hydrochlorid omitted preserves them intact. Procain borate, an alkaline salt of procain having similar anesthetic properties to the hydrochlorid but much more rapid in effect, causes the erythrocytes to crenate in much the same manner as a hypertonic saline solution affects them. It is much to be preferred to the former procain hydrochlorid solutions. The addition of sufficient sodium salts to render procain hydrochlorid solutions distinctly alkaline causes solutions to lose their anesthetic properties by changing the procain salt from water soluble to one that is insoluble in water and of no anesthetic value.

Experiments now under way indicate that most of the acidity of procain hydrochlorid can be safely neutralized without affecting the anesthetic property of the procain. At least the acidity can be neutralized to the degree that the solutions no longer cause hemolysis of blood cells in the test tube and still retain their potency. In addition to causing less irritation, neutral solutions are highly desirable for another reason: the increased promptness with which they produce their clinical effects. Solutions that are neutral or alkaline produce anesthesia in a much shorter time than those which are acid in reaction.

The rate of absorption of acid and of alkaline solutions has been strikingly demonstrated on goldfish by Dr. Charles W. Freeman and by Dr. Paul C. Salisbury of Chicago. Briefly stated, it requires immersion for fifteen to eighteen minutes in a 2 per cent aqueous solution of procain hydrochlorid to induce anesthesia in goldfish. Complete anesthesia is characterized by cessation of fin movements; the fish gravitating to the bottom of the container and failing to react to the stimuli of tapping lightly on their bodies with a pencil. The fish are removed and the same solution is then rendered alkaline as shown by an indicator, and other goldfish placed therein. The fish placed in the alkaline solution lose their reflexes and have all mobility arrested within one minute. This experiment is corroborated clinically; where it has been demonstrated that neutral or slightly alkaline solutions are preferable to acid ones because of their relatively short induction time and the reduced amount of soreness and edema at the sites of their injection.

Just now the search for a neutral or very slightly alkaline local anesthetic agent is being most vigorously conducted. On first thought it would seem very simple to add enough alkaline salts to our present solutions to neutralize their acidity and remedy the difficulty. In fact their effectiveness can be materially enhanced by adding 4 to 7 grains of sodium carbonate to the pint of Ringer's solution used to dissolve the various tablet preparations of procain and epinephrin. Such solutions produce anesthesia in one half the time former solutions required and cause less disturbance at the sites of injection. The acidity of commercial procain hydrochlorid varies, and the neutralization of excess acids should be tested with each batch of solution.

In order that we may more fully understand the problem let us review very briefly a few of the high lights to be considered in the buffering of local anesthetic solutions. It is well known that acids when dissolved in water dissociate into electro-negative and electro-positive ions. The strength of an acid depends upon the amount of hydrogen ions it

contains in a free state. Even water, which is a neutral substance, is capable of being dissociated; but its hydrogen ions are evenly balanced with the OH ions so its hydrogen has no combining power with other substances and it is called "neutral." When hydrogen ions are in excess of the hydroxyl ions the solution is called acid; and when the hydrozyl ions are in excess, the solution is called alkaline.

A liter of water contains 0.000,000,1 (one ten millionth) gram ions of hydrogen and hydrozyl ions. This figure is so unwieldy that for practical purposes it is reduced to the simple figure of 7; because the 1 is seven points to the right of the decimal point. Thus we use 7 to indicate the pH or free hydrogen ion concentration of water, which is neutral. If a solution is acid it will contain more free hydrogen ions and the number of decimal places will be less; so that numerals less than 7 indicate acidity while the numerals in excess of 7 indicate alkalinity. Each whole number represents ten times the acidity or alkalinity of the next whole number.

From a biochemical viewpoint the hydrogen ion concentration, or pH as it is symbolized, is very important, as it governs the actions of enzymes and the functions of the cells and tissues. The human body tissues have a normal pH of 7.4 which is slightly alkaline. We do not fully understand the mechanism by which this is preserved; but it is made possible through the agency of compounds that are capable of absorbing considerable amounts of acids by combining chemically with their free hydrogen ions. Such substances are called "buffers." Our bodies contain also a buffer mechanism for neutralizing alkaline excesses; but this is not required so frequently because the by-products of metabolism are normally acid and the mechanism is constantly called upon to neutralize acidosis.

Buffers are very important in maintaining the reaction of tissues near neutral when acids are produced by, or introduced into, the body. They are capable of neutralizing a moderate excess of acidity in local anesthetic solutions. But when solutions of decidedly low pH are injected, some tissue injury is sure to be done before the buffer substances of the living tissues have time to perform their work.

Two percent procain hydrochlorid dissolved in water has a pH of 5.2. However, when combined with a stock solution of epinephrin containing additional free hydrochloric acid for the purpose of preventing oxidation of the epinephrin, the average commercial local anesthetic has a pH of approximately 4.5. As these numbers are but the logarithms of the concentration of the hydrogen ions, the difference of one whole number indicates an acidity ten times greater than that of its nearest whole number.

Living tissue cells are slightly alkaline, with a pH of 7.4. It will thus be noted that the anesthetic solutions we have been using for many years (having a pH of approximately 4.5) are one thousand times as acid as the tissue with which they come in contact. When an acid local anesthetic solution is injected it is highly probable that many living cells are destroyed before the acid solution is neutralized by the alkaline reserve or buffer substances. Dead cells must be removed by an absorption and healing cannot progress until they are removed. In this connection I would like to quote

from a paper by Emil F. Koch, Abraham Gralnik and Samuel Goldberg of New York, which is scheduled to appear in an early issue of the Journal of Clinical Investigation.

"A great deal of experimental work centered about obtaining the best salts for buffering of anesthetic solutions. There were several factors to be considered. Foremost was the stability of epinephrin in these buffering salts; second, the stability of the solution as regards the maintaining of its pH; and last, possibility of the saponification of the procain hydrochlorid.

"After using most of the possible combinations of strong bases and weak acids, and investigating the possibility of organic bases, the following was adopted as the best solution to be used; keeping the question of stability of adrenalin and stability of solution in mind: a 2 per cent procain hydrochlorid solution to which was added mono and di-sodium phosphate, acetic acid to act as a unit buffer, and sodium chloride to buffer the hydrochloride of procain hydrochlorid. In view of the fact that only a very small amount of acetic acid is added, just sufficient to dissolve the epinephrin, a small quantity of sodium bisulphate is added to prevent decomposition of the epinephrin. The pH of the solution is about 6.7.

"That the solution is effective in doing what we set out to do was recently determined. A solution twenty months old was tested against a known control with the results as given. It indicates a loss of about 10 per cent in vaso-constrictive power which would not affect the constrictive power of the solution. It must also be remembered that this 10 per cent variation will come within the experimental error of a physiological determination.

"There was also a question of saponification of the procain to be considered. Our tests have shown that if the pH of the solution be kept below 7, on standing there is little or no saponification or destruction of the procain within measurable limits. If, on the other hand, the pH of the solution is set at 7.5 or higher, there will be evidence of some saponification. The protection in that case is that before there is a great loss in efficiency the solution will discolor and should then be rejected.

"In all cases we have found that a clear solution will be effective, shows no saponification and no loss of epinephrin efficiency in buffered solutions. The solution will maintain its pH for a long period of time; as near as our research will indicate at the present time. It will maintain its pH for a period of one and a half years or more, which is more than ample to meet any commercial necessity and practicability. Our researches also indicate that the solution will discolor when the pH will drop; and since discolored solutions are never used we have a good factor of safety in this solution.

"High concentrations of sodium chloride are more injurious to the tissues than distilled water. The skin will recover from injections of water, but show areas of degeneration and blister formation with high salt concentrations."

The same authors in a report in the Dental Items of Interest of November, 1930, state: "Acid hemolysis with a pH lower than 5.2 as a rule resulted in the formation of acid hematin. Certain salts increased the hemolytic action of procain, and others diminished. The

adjuvant, or inhibitory, is in general related to their buffering action. No practical discernible difference was noted between potassium, sodium and calcium salts of the same series, in connection with procain hemolysis.

"A careful determination of the fragility range of the erythrocytes of a human subject was made in physiological saline solution, and in Brinckman's solution. Comparative series of procain solutions and isotonic salt solution with a pH ranging from 3.8 to 6.0 were studied. The critical point of acid hemolysis was found to be pH 5.7, which agrees fairly well with the results of Christopher who states the critical point to be pH 5.6."

With the amount of scientific investigation being carried on in this field I am confident that the next few years will witness still greater refinement in the compounding of local anesthetic solutions.

Dentistry has now reached the point where local anesthesia should be employed not once, but several times each day, in order not to overtax the nervous system of our patients. Highly efficient dental service is impossible without its use for extensive cavity or jacket crown preparations, and pulp removals, as well as surgical procedures involving the supporting structures of the teeth.

DISCUSSION OF THE PAPER BY DR. P. G. PUTERBAUGH, LOCAL ANESTHETIC SOLUTIONS

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THE paper by Dr. Puterbaugh is especially timely, as it calls attention to several facts which have recently been receiving considerable attention among students of local anesthesia. The application of these more recently acquired and proven facts has already produced a change in the attitude of the profession towards the local anesthetic solutions in use; the better informed operators demanding something a little better than the solutions we have employed for so many years. We have been too long satisfied with a fairly good anesthetic, and I believe the time has now come when the profession will insist that the undesirable qualities of local anesthetic solutions be eliminated as rapidly as scientific progress can accomplish it.

For several years I have been thoroughly convinced that improved solutions for local anesthesia were possible, for I have been using them constantly both in my private practice and in the clinic at Northwestern University Dental School, where all of the injections are made with various solutions under investigation. I heartily concur in the statement made by Dr. Puterbaugh that procaine borate is superior to the novocaine solutions commonly employed, and that alkalinized, or buffered solutions of procaine hydrochloride have distinct advantages.

His discussion of the local tissue reaction when acid solutions are injected (and you must all keep in mind that nearly all manufactured solutions, as well as freshly prepared solutions commonly employed are acid) is one of the most important phases of this subject and one which has for years been entirely overlooked. Pages and pages have been written on the use of isotonic solutions, but until recently no word was spoken against using a solution which was frequently three points in pH value below that of the blood. My

own clinical observation is that isotonicity of a solution is of minor importance; or to put it another way, that a hypotonic solution causes little or no disturbance, because the amounts injected are so small and the variation from the salt content of the blood is so slight. I do believe that a markedly hypertonic solution should be avoided, and that frequently some of the post-injection disturbances have been caused by the addition of too many salts.

My most favorable results have been with alkaline solutions without the addition of sodium chloride or Ringers Salts.

Dr. Puterbaugh made one statement with which I disagree, or possibly I have misinterpreted his statement. He says "The addition of sufficient sodium salts to render procaine hydrochloride solutions distinctly alkaline causes solutions to lose their anesthetic properties by changing the procaine salt from water soluble to one that is insoluble in water and of no anesthetic value."

This may be true of stock solutions which are kept for a indefinite period, but is certainly not true of freshly prepared solutions. The anesthetic efficiency as measured by the induction time, increases with the addition of alkali up to a pH of 8.4, altho it is very true that such solutions are unstable.

While the procaine base, which is precipitated is only very slightly soluble in water, it is probable that the free base is the active element, and its rapid dissociation from its salt in an alkaline medium may be the reason for its increased effectiveness. Certainly we have sufficient data to state that the anesthetic effectiveness is definitely related to the pH of the solution, and not dependent on the particular procaine salt employed.

I do not insist that a solution must have a pH exactly equal to that of the blood and body tissues, but I do believe the best results are obtained by a solution which does not vary from that more than one pH value in either direction. The limits of efficiency appear to be reached on the alkaline side at 8.4 pH and it is reasonable to assume that a solution with a pH as low as 6.4 is within reasonable limits.

Up to the present time stock solutions have not been marketed which were alkaline, but some are now available with a pH which appears to be satisfactorily maintained slightly above 6. These solutions however are made more complicated by the addition of the buffer salts, and a stabilizer to prevent oxidation, and simplicity is desirable if possible.

I still believe that a freshly prepared solution, either of procaine borate or of procaine hydrochloride which has been made alkaline by the addition of a small amount of a simple base will prove more effective and satisfactory than the stock solutions. It is a hopeful sign for the future that the manufacturers are awake to the need of improving their materials, and it may be that a method of preparing an ampule or carpule will be devised which overcomes the present objections.

With the present solutions the addition of epinephrine is essential for a satisfactory solution. That has always been a complicating factor in the preparation either of fresh or stock solutions, since this drug is so unstable. It is earnestly to be hoped that in the near future a satisfactory substitute for

epinephrine can be developed which will be equally effective and more stable and generally satisfactory. It may be that a new anesthetic material will be developed which will have sufficient vasoconstricting action and not require the addition of another drug for this purpose.

Having given considerable study to the subject of local anesthetic solutions, I am especially pleased to hear a paper such as Dr. Puterbaugh has presented. For the time has come when we need no longer employ so much time in discussion of technique, and the more interest that is stimulated in the subject of the materials which enter into the anesthetic solutions, the sooner a satisfactory solution of the problem of improving the materials will be solved.

INSTITUTIONAL DENTISTRY

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THE Department of Public Welfare of the State of Illinois has under its supervision and control, all the State institutions within the Commonwealth. Hon. Rodney H. Brandon is the Director, Mrs. L. Silvis is the Assistant Director.

This great Department has two Divisions—Charities and Penal, each under a Superintendent.

The Charitable Group is composed of the following institutions—Soldiers Home at Quincy; Soldiers Widows Home at Wilmington; Soldiers Childrens Home at Normal; Training School for Girls at Geneva; Training School for Boys at St. Charles; Research Hospital in Chicago; School for the Blind and School for the Deaf at Jacksonville; Industrial School for Blind at Chicago; Eye and Ear Infirmary in Chicago; School and Colony for feeble minded at Lincoln; Hospital and School for feeble minded and epileptics at Dixon; and the following hospitals for the insane—Elgin, Kankakee, Manteno, Chicago, Jacksonville, Anna, Peoria, Alton and East Moline.

On Nov. 3, 1851, 34 patients were admitted to Illinois' first institution for the insane at Jacksonville. From 1851 to 1872 there was one state Hospital with 458 patients. 1932, eleven state hospitals with over 30,000 patients, increasing at compound rate of 2.2 per cent per annum. These figures give us food for serious thought.

The Penal Group is composed of the Northern Illinois Penitentiary at Joliet and Statesville, Southern Illinois Penitentiary at Menard, Hospital for the criminal insane at Chester, Men's Reformatory at Pontiac, Women's Reformatory at Dwight and the State Farm at Vandalia, these have a combined population of over 11,000.

In 1920, 57 out of every 100,000 of our population were in penal institutions. In 1930, 112 out of every 100,000 were in prison in this state.

In 1900, 134 of each 100,000 were in hospitals for the insane. Today there are 300 out of each 100,000 in such institutions. The feeble minded in State Colonies have increased from 37 per 100,000 in 1920 to 57 in 1930.

Forty per cent of the taxes paid into the State Treasury is used in the Department of Public Welfare, which has a population of about 45,000 and employing 6,700 men and women.

The following are the purposes of Charities Law:

1. To provide humane and scientific treatment and care and the highest attainable degree of individual development for the dependent wards of the State;

2. To provide for delinquents such wise conditions of modern education and training as will restore the largest possible portion of them to useful citizenship;

3. To promote the study of the causes of dependency and delinquency, mental, moral and physical defects, with a view to cure and ultimate prevention;

4. To secure the highest attainable degree of economy in the business administration of the State Institutions consistent with the object above enumerated, and this act, which shall be known as the code of charities of the State of Illinois, shall be liberally construed to these ends.

The Dental Corps of the Welfare Department is composed of 19 full time, two part time and four contract dentists.

The Director has added 4 full time, one part time and 3 contract dentists during this present administration. He has also added 3 complete new dental units and five repossessed units, besides several individual pieces of equipment such as engines, chairs, air compressors, and Clinic Model Sterilizers.

The Director, Mr. Brandon, has reduced the per capita expense $80.00 this past fiscal year, making a saving of over $3,000,000.00 while at the same time increasing our dental personnel as per above, the Medical personnel ⅓, graduate nurses 300 per cent and each hospital dentist with an assistant.

In developing our dental program we had to make it elastic so as to enable us to make changes to meet certain conditions that each institution presents.

From a casual survey of the inhabitants of these institutions you will see they include normal children, men and women, delinquents, insane, feeble minded and criminals, each a distinct classification and problem. Our dental program was so arranged that it was gradually absorbed into the general running of the institution without conflicting with the usual orderly procedure.

The dentists are confronted with a serious problem in the State Hospitals. Many of the patients are non-cooperative. This condition makes it necessary to train in Oral Hygiene the employees who have charge of the wards.

The members of our dental corps must be not only good operators but good in oral surgery, pathology, prosthetics, and extracting. When we consider the handicap of patients being non-cooperative, our men and women have real problems confronting them. That they are solving these problems and successfully handling them, the following figures will convince the most skeptical.

The service rendered by the Dental

Corps of the Department of Public Welfare for the fiscal year of 1931-32 is as follows:

Examinations	80,009
Extractions	36,854
Prophylaxis	21,567
Gold fillings	183
Amal. fillings	14,445
Synthetic fillings	2,116
Cement Fillings	2,216
Treatments	70,447
Crowns	266
Bridges	297
Full Dentures	706
Part Dentures	235
Denture repair	647
Crown and Bridge repair	227
Fractures	19
X-rays	420

This large amount of dental service is not all charged against the State. Most of the prosthetic work is paid for by the patients, relatives or guardians.

A considerable amount of orthodontia service is given the boys and girls at the Soldiers Childrens Home at Normal. These children are as pleased over receiving their dental service as they are with any of their other daily happenings. Every attention and service is being given these children that modern dentistry demands.

Some of our dentists serve as anesthetists for the hospital surgeons.

Generalizing, our dental program is as follows: Extracting, Prophylaxis, Prosthetics and Operative.

This program varies with the class of patients in the institution.

Our work has been successful because of having the cooperation of the Administration, Department Officials, Managing Officers, and a most responsive attitude of members of our profession. Advice and counsel has been sought from leaders in our profession. They have willingly responded, not only by giving counsel, but by giving of their time.

Every member of our Dental Corps deeply appreciates the assistance given by these men, and are reciprocating by giving their best as professional men and women, and maintaining membership in the American Dental Association.

FINDS ACID MOUTH MORE COMMON IN CALM PERSONS

Acid saliva, popularly known as "acid mouth," which attacks the enamel of the teeth, also has a relation to the personality of the individual. The more excitable person tends to have a less acid saliva than does the calm and apathetic person, it has been found by Dr. Gilbert J. Rich, of the Institute for Juvenile Research of Chicago.

Dr. Rich suggests, on the basis of his and previous studies, that abnormal acidity or alkalinity may affect not only the temperament of the normal person, but also the more serious personality disturbances of mental disease.

"So far the data all point in the same direction," he said. "The evidence may be summed up as showing that in the gross personality deviations of mental disease there is some disturbance of the acid-base balance, and that, by and large, lowered acidity tends to be associated with the more active states and heightened acidity with the more apathetic conditions."

A similar relationship was found between the excitability of the person and the amount of the chemical creatinine found in the blood. The most emotionally excitable persons have the greatest amount of this substance which is a product of muscular metabolism found in greater or less amounts in the blood of all normal persons. —*Dentogram.*

BASE PLATE MATERIALS*

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THE scientific, chemical and manufacturing problems of the Phenol Resin and Pyroxylin compounds have been well covered in a paper by Dr. Lester Furnas of Cleveland, Ohio, which appeared in the January, 1931, JOURNAL; therefore I will try to confine myself to the problems that confront the men in the average dental practice of today in the use of the various base plate materials.

The Pyroxylin group, two of which are Hecolite and Acolite, have the physical characteristics which make these materials suitable for denture bases—thermal conductivity, hardness, ranging from that of horn to that of ivory, and toughness comparable to whalebone. They are quite easily molded at from 232 to 245 degrees Fahrenheit, have a specific gravity of 1.4, and are stronger than vulcanite. Translucency is as good, if not better, than any known denture base material. There is also some porosity. Until quite recently the greatest objection to the use of a cellulose base has been its tendency to gradually absorb substances from the mouth fluids.

Occasionally discoloration occurs, as does also a sour odor similar to that sometimes noticed with a vulcanite denture. Discoloration occurs more frequently in mouths of patients who are negligent in brushing their dentures, and also in the mouths of habitual smokers. However, this would occur with any plastic base material.

Possibly their greatest value is from the esthetic point of view.

Recent manufacturing processes of the plastics, which allow a much lower camphor content, as well as a sealing of the volatile camphor within the material, along with the dry heat method of pressing, have done much to make a denser and more satisfactory denture base. Best results are obtained by the dry heat method of pressing, continuing the heat after the flask is closed, in order to drive out volatile matter and securing a denser base. The color is much improved over the moist process. The flasks can be watched in closing, consequently there is not the breakage in models as in the moist method.

It seems that, contrary to general belief, plastics are being used to a greater extent than heretofore. The men who used this type of materials some years ago, or before manufacturing and pressing methods were improved, are apt to mislead one in their opinions. It is predicted that the plastics will in due time take the place of vulcanite. Present experimental work will possibly overcome most of the present objections.

The Phenol Resin compounds have all the physical characteristics of the Pyroxylins, with the exception of strength. To date this has been their one great drawback and has been very discouraging to both manufacturer and dentist alike. When the Phenol Resin compounds first came on the market for denture bases I made quite a number of cases, which, as far as esthetics was concerned, were far better than anything I had ever seen, but the comebacks from

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breakage nearly gave me nervous prostration. After making a number of repairs, which only made them more brittle, I reproduced most of them with vulcanite; and later on, when I got my nerve back, I began using the Pyroxylins again.

My friend Dr. Gillis made the statement that if he were a praying man, he would pray every time he used this material that the patient would not return the next day with the denture split through the middle. If he used the Phenol Resins I will agree and pray with him. (Gentlemen, do be careful! —Editor.)

Ever since I began using the Pyroxylins I have had no trouble with breakage; in fact, I have had but one case crack in the last five years, and that was due to absorption of the ridges, which allowed the denture to ride on the hard palate. What would happen to aluminum, vulcanite or even a gold base under the same conditions? I think you will all agree that either one would crack or become so loose that it would have to be rebased or made over.

Aluminum was used quite extensively for a number of years, quite a number of dentures being made using both the swaged and cast methods.

However, after being worn for a couple of years or more the vulcanite would shrink away from the metal base, allowing secretions and sometimes particles of food to lodge between the metal and the vulcanite, resulting in a very unsanitary condition. All of you no doubt have had this experience, especially if you have repaired one of these cases. I also have had some cases where the aluminum seemed to disintegrate in the mouth after being worn for a few years, some of which were full of pits and others were thin in spots. Whether it was due to poor aluminum or chemical action of the secretions in the mouth, no one seemed to know. I have not made an aluminum denture for ten years.

Gold and platinum are two of the materials that can be used for full dentures without question as to their physical properties. However, the cost is prohibitive to the average patient, and I doubt very much whether the average practitioner will construct twenty-five full gold dentures during his life in dentistry.

Here again the sanitary and esthetic factor enters into the case. To date there has not been produced a really satisfactory material for attaching teeth to a metal base. However, for strength and esthetics the pyroxylins seem to answer the purpose better than vulcanite and are being used at present for this purpose more generally, especially on the stainless steel denture bases.

Wipla metal, or the new stainless steel used for denture bases, was developed in Germany in 1914 by Prof. Hauptmeyer. Precious metals were scarce during the war, so there had to be developed something to take their place, and Wipla metal was used extensively in German hospitals.

It has been in use for dentures in Germany since 1915 and in this country since 1924. The Wipla alloy used for denture bases has twice the strength of an equal thickness of gold and about one-third the weight of gold. It can be used very thin (about 22/1000) without applying any other substance across the vault. The metal is relatively inexpensive. It has all the advantages of gold or silver and is just as desirable

a color, with the added advantage of greater strength. There is no rolled or cast material used today for dentures that can equal this material in density. If we consider its weight as 28, gold would be 70, and platinum 78. The statement has been made that it would rust where cut or ground into. Were this true, it could not have been used in wounds, say German authorities. It will also hold its polish indefinitely and has a further advantage—should there be tissue change due to atrophy, the base can be retrimmed and reswaged to meet the new form, and by reattaching the teeth there would be what would correspond to a rebased denture.

Vulcanite, the material with which we are all familiar, has been more universally used for dentures than any other material. However, since the introduction of vulcanite for denture purposes, its weaknesses have been recognized by dentists, while its ease of manipulation, low cost, and the fact that it could be repaired or added to, made it possible for many people to have dentures who previously were compelled to pay for the relatively expensive metal restorations or do without them. It is the opinion of some that the *life* value of a vulcanite denture is about one year. By that I mean the average vulcanite denture becomes not only unsightly through loss of color of the pink rubber, but also unsanitary at the end of a year through the absorption of fats. The average vulcanite denture worn one year and placed in a lye bath, brought to a temperature of about 200 degrees, will throw off enough grease to combine with the lye to form soft soap. When a dentist has made this experiment, he must wonder whether such a product is the proper material to use in the mouth. Patients who have worn both vulcanite and gold dentures will invariably state that the mouth feels hot or peppery with vulcanite, as compared to gold. The inflammation beneath the vulcanite denture is made immediately apparent when such is substituted for gold, because, as the gold causes a reduction of the inflammation, the new gold denture becomes loose. For that reason it is best to have the patient leave the old denture out for a day or two and allow the tissues to come back to normal before taking a new impression. There will be better results in all cases of replacement if the patient goes without his dentures for a couple of days before taking new impressions.

Rubber has a shrinkage factor which will be anywhere from three to six percent, depending on the quality of the rubber used. The better the rubber, the greater the shrinkage. When a denture is vulcanized, there are several common centers toward which the shrinkage moves, resulting in warpage—lower dentures tending to close across the heels and upper dentures to widen. In both cases, however, it causes the buccal borders of the denture to ride hard. If this is true about rubber, why worry so much about the warpage and shrinkage of the other plastics?

Where sufficient coloring is used to get a good pink, the rubber is definitely dead at the time the denture is inserted in the mouth and has already begun to disintegrate. This results in that part of the denture which it is most important to have pleasing in appearance losing its color first and then absorbing a maximum of oral fluid and grease.

Vulcanite dentures were in use before

we took up dentistry, and they were in use when we first learned to open flasks. As a result, we take the weaknesses of vulcanite as a matter of course. Many would be absolutely shocked if the unsanitary condition of the average vulcanite denture were explained to them. To really appreciate the situation, we must go back to the time when Goodyear invented the vulcanizing process. Up to that time there was no plastic known to man which could be molded into a denture and have sufficient strength to make such a denture practical. The only dentures that were made consisted either of gold or other precious metal, with the teeth soldered directly to the gold or imbedded in porcelain in addition. As a result, the construction of a denture was not only an expensive undertaking, but when completed, was far from a good fitting or good occluding restoration, and often was equally lacking from an esthetic standpoint. Naturally, the introduction of vulcanite became an immediate boon both to the edentulous patient and the dental profession. Its shortcomings were realized in the course of a few years, but, as there was nothing better, vulcanite maintained its popularity. But immediately upon the introduction of celluloid in 1872, dentists began the use of that material, not only because of the esthetic improvement in color, but for the fact that such dentures felt better in the mouth of the patient, due to the belief that celluloid was less of a dead insulator than vulcanite. Celluloid later came into disfavor, for reasons which most of us know. It was porous, which caused it to stain badly and also to absorb moisture or oral fluids. The chief objections were the camphor taste and its lack of stability, which caused warpage to an extent that made accuracy of adaptation a matter of chance. Celluloid was the second plastic invented which could be successfully molded into a denture with sufficient strength. The third plastic was synthetic resin, and to this day only these three plastics are known. So if we want something better than rubber or the cellulose compounds we must go into the synthetic resin field. There are quite a number of different types of synthetic resin. To date, dentures have been moulded of the following: Phenol-formaldehyde, Glycerol, Urea, Casein and Petroleum or Paraffin. Porcelite, Iteco and Coedal are of the Phenol-formaldehyde type, and from the standpoint of mouth health they are years ahead of either the rubber or cellulose compounds, for they are absolutely sanitary in every respect, but they *will* break, and that is the one factor that has to be overcome. The Glycerol type of resin is the one from which we may expect good results. It was originally developed by the General Electric Co., who turned it over to the Bakelite people for further perfection about eleven years ago, and has been sold under the name of Glycene. This material, because of its great density, does not have the shattering strength or toughness of rubber, but, for the same reason it has a transverse strength of about 20 percent better than good red rubber, and, as compared to the other resins, it has about three times the shattering strength. When completely cured without coloring material, Glycene is transparent and colorless like glass; therefore it can be given any color or any degree of translucency desired. When brought to a

complete cure with its combination of chemicals, the claim is made that its texture and color will last indefinitely. The shrinkage factor of Glycene is very low, being about 1 percent, and it is believed that it will not be long until even that small amount will be reduced. As a result, Glycene will produce the very best adaptation possible with any known plastic material.

It is stated that a number of Glycene dentures placed in water for 48 hours and boiled for 16 hours absorbed just a fraction over 1 percent of moisture, and in the last 24 hours of immersion, with 7 hours' boiling, there was no increase in absorption. To obtain such a result, Glycene must be fully cured; and when it is, the low water absorption rate as shown will give Glycene the most sanitary material used as a denture base plastic. This material is so dense that it bakes into the pores of porcelain teeth. If the tooth is first roughened a bit, removing the glaze, the union between porcelain and Glycene will be stronger than porcelain. As a result, care must be exercised in trimming around the teeth, or the porcelain itself will chip away. The density and low rate of water absorption in Glycene gives to it the nearest to perfection in a denture ever produced. It is chemically inert, and, as bacteria will not live upon glycerol resins, the mouth tissures take to it in a way similar to porcelain. When fully cured, it will hold its original color and texture indefinitely and can be repaired or rebased without injury to color or texture. In fact, such additional curing during a repair increases the shattering strength of the denture.

The Bakelite Corporation Research Laboratories have been working on resins for artificial dentures for eleven years. After hundreds of tests, and with various materials kept in solution for a period of years, it was decided about five years ago that the Glycerol type resin was not only the best one for dentures, but, in the opinion of Bakelite research engineers, the only synthetic resin that combined all of the desirable qualities for a denture base plastic. It may be of interest to know that Glycene was under development for denture purposes before some of the others were placed on the market. At the present time the material is satisfactory. The troubles they are having in their research work are all of a mechanical nature; the greatest trouble is maintaining occlusion. To date we have no investment material of sufficient strength to withstand the moulding pressure which is necessary for a proper cure; however, nearly all cases can be corrected by spot grinding after the case is finished. It is to be hoped that in the near future we will have a base plate material that will fill all the requirements necessary for denture work.

The question is often asked whether or not base plate materials have anything to do with tissue changes in the mouths of patients wearing dentures. What is called sulphur or rubber sore mouth is due to faulty vulcanization. A new palate in these cases usually clears up the trouble, especially if we vulcanize on tinfoil or cellophane. Most of the tissue changes that take place are due to bad impressions, poor centric relation, muscle impingement, postdam too far forward or too far back. Poorly articulated teeth with cuspal interfer-

ence will produce trauma. The extremes of alkaline, or acid saliva, will also affect the tissues.

In closing, let it be said that none of the plastics are perfect. However, I do believe that we should use them in our practice, find out for ourselves what is wrong with them and in this way encourage the men who are doing the research work with these materials. Constructive criticism is what they want; it spurs them to greater efforts, which is bound to be of benefit to the dental profession and also our edentulous patients.

SOME OBSERVATIONS OF ABNORMALITIES IN OCCLUSION WHICH FOLLOW LOSS OF PROXIMAL CONTACT

BARNETT KESSLER, D. D. S., *New York, N. Y.*

THE interdependence of each tooth in the natural denture for the harmonious functioning of the dental apparatus is generally accepted. Yet the observing practitioner is at a loss to understand with what seeming indifference teeth are extracted without being replaced as soon as permissible. This can only be charged to a general apathy or habitual indolence that results in an inability to face facts.

Let us take, for example, the case of the loss of the upper left first molar, and trace the resultant sequelæ.

The *first* reaction is a wilful, conscious use of the right side of the denture for mastication. The non-replacement of the lost member and the habitual use of the right side will create a phenomenal sequence of changes.

The diminished function on the left side over a reasonable period of time must tend toward musculatory underdevelopment compared with a corresponding overdevelopment of the functioning right musculature. This often results in some apparent esthetic unbalance that is readily discernible to a trained observer.

Second, forces are unleashed, which were previously controlled and balanced, that drive the upper left second molar forward. This is governed by inclined planes of the tooth surfaces in function, together with the tendency of teeth to move downward and forward when unsupported by mesial proximal contact. These forces are synchronized with the action of the muscles and ligaments of mastication and the condylar paths in the glenoid fossæ. This drifting forward of the molar renders the tooth incapable of neutralizing or overcoming lateral and axial stresses and creates the familiar fertile field for periodontal lesions.

When the drifting tooth is positioned over the lower second molar, the rule of action which is fittingly termed *hammer and nail principle* operates.

The lower second molar may be likened to a nail held or directed by two adjacent teeth, which may be compared to two fingers holding a nail. The *free* roving upper second molar delivers the blow and acts the part of the hammer. Clinical check-ups reveal that this does not become depressed in its socket when

functioning, due to its ability to recoil from the repeated blows whereby the directing forces are dissipated.

The recipient of the blow, namely, the lower second molar, is depressed by the many successive blows, as the forces are concentrated and directed in the long axis of the tooth by the retaining teeth, or the fingers holding the nail.

This principle operates on individual teeth or in many weird and uncanny combinations. It is interesting to note the case of a molar, free on one side, acting as a hammer and depressing an opponent held on both sides; or perhaps a more spectacular observation of a free bicuspid depressing an opposing molar. This opens new vistas that tend to elevate dentistry above the banal practice of filling holes and gaps.

It is refreshing to learn that dental pediatricians, orthodontists, peridontists and others interested in occlusal problems are endeavoring to awaken the profession to the importance of harnessing incongruous forces and regulating their actions.

It cannot be too strongly emphasized that the recognition of the formulated *hammer and nail principle* and its consideration as an important factor in the correlation of factors for solution of dental problems is paramount.—*Dental Cosmos,* Aug., 1932.

NITROUS OXID AND OXYGEN IN CASE OF MYOCARDITIS

THE following is a report of administration of nitrous oxid and oxygen in a case of myocarditis for removal of twenty-one teeth. The patient, a woman of forty-seven years, had had three cesarean operations performed. Six weeks previous to presentation at the office she had recovered from an influenzal grippe which, according to a report from her physician, had affected the myocardium of her heart. Oral examination revealed the upper central incisors and a molar to be loose, and the gums were exuding pus. The rest of the teeth were worthless. On the day of the operation the patient refused to have her teeth removed in any other way. Her physical appearance was fair and she was not breathing hard after climbing one flight of stairs to the office, so we decided to go ahead. The patient had not eaten for four hours previously; no other type of premedication. A hypodermic syringe with camphor in oil was prepared and kept handy. The arm of the patient was exposed and scrubbed with alcohol and iodin in case it became necessary to administer a hypodermic. Nitrous oxid and oxygen was cautiously administered for three minutes before commencing to remove the teeth. The lower and upper teeth of the left side were removed, then all on the right side. The total time which elapsed was thirteen minutes. An upper first bicuspid root was broken and removed with root forceps; lower second molar root was broken and removed with elevators. The patient came out of the anesthesia quietly, rested for a half-hour on a cot; then, unassisted, rose and walked out of the office.—*Dental Cosmos,* Aug., 1932.

SIMPLIFIED METHOD OF MAKING CAST GOLD PORCELAIN VENEER CROWNS, AND INVESTING THE PATTERN WITH CENTRIFUGAL FORCE

By GEORGE AMBUEHL, D.D.S., *Wilmette, Illinois*

THIS simplified method of making cast gold crowns relates to the provision of facilities for simplifying and rendering more economical and perfect the production of crowns for teeth.

The production of a gold crown has formerly involved the building of such a crown of plate gold, or the casting of such a crown. The casting of a gold crown has heretofore involved the building of a form for the crown in wax. When the crown is to be provided with a porcelain veneer, the recess for the reception of the porcelain veneer must be carved in the wax form prior to casting. The making of such a recess in the wax form is a time consuming task, requiring skill and patience.

The present improvement consists in providing combustible, perforated, hollow shells in conventional tooth forms, Fig. 1, which may be originally provided with the requisite recess No. 12, Fig. 1, for the porcelain inlay. A suitable size and shape of celluloid shell for the tooth to be supplied is selected and the same is fitted to the tooth, then the shell is filled with inlaywax, and while the wax is still warm it is placed over the tooth previously prepared for its reception, which secures an impression of the exact size and shape to fit the prepared tooth, Fig. 2. The excess of wax

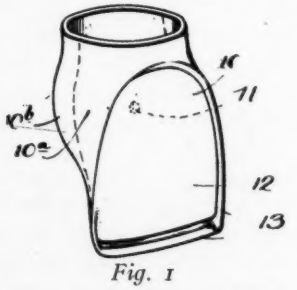


Fig. 1

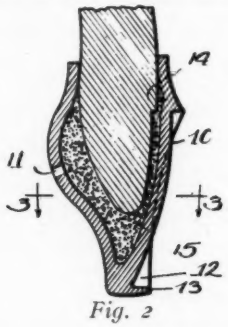


Fig. 2

which is squeezed out of the combustible shell by the pressing on over the prepared tooth is readily and easily removed. The sprue employed for holding a pattern to be invested is heated and is inserted through a perforation in the shell, into the wax, No. 11, Fig. 2. When the wax is chilled and hardened the impression is removed from the tooth, that impression consisting of the form and wax and the same invested.

The present methods of investing wax patterns for castings consists of placing the pattern upon a sprue, which sprue is supported in a metal chamber. The investing material mixed with water is painted, vibrated or poured around the wax in the metal chamber and allowed to solidify. After sufficient drying of the investment the sprue is withdrawn, the mold heated to drive out the wax.

The above described process of investing the model and forming a mold requires care and experience in order to secure satisfactory results as air remains in the investment which accumulates to form voids. Also, the mixture of the investing material with the water is not always a homogenous mass and over-wet portions of the mold, when it is dried, also produce voids.

Investing the wax pattern with centrifugal force secures molds of greater and more uniform density and operates to extract air and the water in excess of that required to satisfy the powder.

Fig. 3

These objects are attained by means of the apparatus illustrated in the accompanying drawing.

Fig. 3 is a vertical elevation, partially broken away of rubber cup.

Fig. 4 is a vertical elevation, partially broken away of casing.

Fig. 5 is a horizontal section on line 2-2 of Fig. 4.

As will hereafter be seen the object is to force the investment material intimately about the wax pattern by centrifugal action.

The impression mounted upon a sprue is placed within the rubber cap, Fig. 3, thrusting the free end of the sprue through the wall of the cap. The rubber caps are fitted over rims 14.

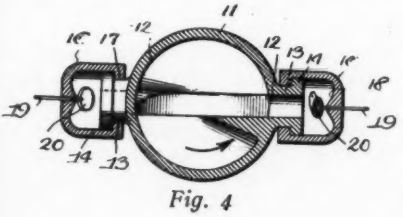


Fig. 4

When the apparatus is assembled as above described, the current is supplied to the motor which rotates the casing 11. The investing material is mixed with water so as to flow freely, is then poured into the casing 11 and the motor allowed to run about five minutes. The

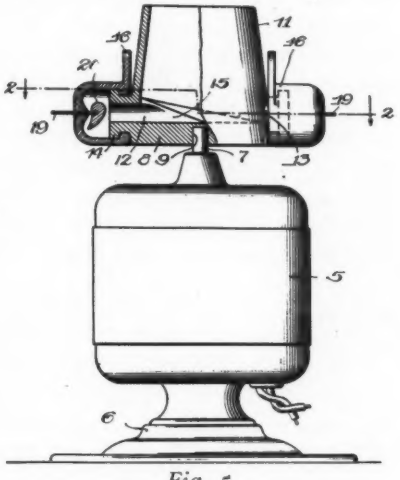


Fig. 5

bottom wall of the casing is curved spirally from lines extending opposite the leading edges of the passageway 12, the spirals act as guides to direct the investment through the passageway 12 into the cap 16.

When the motor is turned off it will be found that water may be poured from the casing 11. This is the excess water not required to satisfy the powder of the investment. Remove the caps 16 from the casing 11 and the investment will be found packed around the wax. When the investment is hard, remove from caps and invest in metal ring, burn out and

cast. It will be found, when a casting is made, that the investing material has been brought more uniformly and intimately adjacent to the surface of the pattern, as most minute configurations upon the surface of the patterns are accurately reproduced.

The casting is finished in the usual way and a porcelain veneer baked to fit the recess on the labial or buccal surface.

It has been shown how a suitable shaped celluloid, perforated, hollow shell form may be used in the making of a gold crown and the investing of same by centrifugal action. Simplifying and perfecting the casing. This method of investing may be applied to inlays and other small wax patterns and models for bridges and full dentures.

THE RELIGION OF LINCOLN

Every sect and church has claimed Lincoln for its own. They have been so eager to save his reputation for orthodoxy that they have overlooked the religious quality of his life. . . . Lincoln's faith was not a thing given. It was achieved, born out of the deep struggles of the years, from the agonizings of his soul. There was for him an ultimate moral and spiritual authority of the universe. What was its nature?

Lincoln was not "alive" to nature as Darwin was, devoting his life to the patient finding of its ways of working. He was not alive to the great whole of things as was Emerson, the Boston Brahman, the Yankee Plato, walking life's sunny uplands calmly proclaiming,

"Even in the mud and scum of things
Something always, always sings."

Nature's beauty never, so far as I know, moved him as it did Wordsworth, or Tennyson or Ruskin. Ruskin "the most exquisite observer and recorder of natural beauty who ever lived," blushed and trembled as a boy at his first view of the Alps. Lincoln on his first visit to Niagara Falls stood "wondering where all that water came from." But Lincoln felt the moral paradox within our human world, the stark tragedy that attends our human lot. "Both read the same Bible, pray to the same God; and each invokes his aid against the other. . . . But let us judge not that we be not judged." A just God! that was the ground of his faith and the foundation of his hope. In the sense of justice he touched, he believed the ultimate secret of the universe. That justice carried its own authority. The human heart must instinctively adore it and bring to it at last its lasting loyalty. In this he believed with all his heart and soul and mind. But that God was known only in part. And Lincoln never identified God with his partial knowledge. There was for him, therefore, but one requirement, "to do justly, to love kindness, and to walk humbly with God."

Without the spirit of "just and merciful dealing" no wrong could be righted, no deliverance could be had. "Let us, therefore," he said, when victory was near at hand, "study the incidents of this as philosophy to learn wisdom from, and none of them as wrongs to be avenged." To this end he strove through all the war smitten years.

When an assassin's bullet laid Lincoln low it seemed that the spirit of honesty and merciful dealing had fled the land. Ministers went into their pulpits on the Sunday following his death and told their congregations that it was God's will that he should be taken for the South needed to be punished and Lincoln would have been too merciful. And we like them forget his counsel and his practice. The tensions that hold our modern world are full of peril. Our social structure is none too safe. Widespread and continued unemployment will put in jeopardy the strongest of governments. Only a spirit of just and merciful dealing can bring about our deliverance. This was the very heart of Lincoln's religion. This is in the original charter of our faith. This is the call to the highest heroism—to keep alive in a day beset with fear and passion and strife "the spirit of just and merciful dealing."

From Rev. Clyde McGee's sermon Sunday morning, February 7, 1932.

• EDITORIAL •

ONE YEAR

With the issuance of the August number we close the first year of the ILLINOIS DENTAL JOURNAL. Conceived with the loftiest purpose; nurtured by the good-will of the members; read, we hope with profit and pleasure; of increasing value as a medium for our advertisers, who in fact make this or any publication possible, we add our thanks and appreciation to all who have contributed in any way for its continued growth.

This year has tested the vitality of everything in which there was any life-blood with which to fight. Many have gone down battered and bruised by the battle, some by reason of inherent weakness, others by the force of circumstance. We have not the exultation of the Pharisee who exclaimed, "Lord, we thank thee that we are not as other men," for with the breaking of one link, the chain weakens, and we are of that chain. We hoped that our first year, troubled as have been the waters, would find us at the end still riding the waves. We express our gratitude for the fulfillment of that desire and go courageously onward with the hope that clear skies will soon prevail for all.

We have in process of formation some ideas which will be utilized later when things ease up. One is the enlarging of the JOURNAL to one hundred pages. Some new sections will be added and new contributors will lend zest. Let it be said we have no "growing pains," but we do have an ambition to build nobly for Illinois. Neither are we insensible to the fact that we are other than a State Journal, and will never be so sophisticated as to endeavor to usurp a place to which we have no claim.

Also will the forthcoming fiscal year be free and untrammeled from political persuasion or sectional controversy as heretofore. We will stand on principle and that alone; for the embodiment and pertetuity of our profession is far and above any other consideration.

Along this line we cannot refrain from quoting a saying of Joan D'arc: "Que mon nom soit flétri; que la France Vive." "Let my name perish; but let France live." And so, as she, may we be true to the call within us, and perish if needs be, that our profession, glorified and embellished by those who have gone before, may live.

INSTITUTIONAL DENTISTRY

Few in our profession are aware of the magnitude of the work being done and the large number in need of dental service in the penal and charitable institutions in Illinois.

An article appearing in this issue of the JOURNAL by the State Dental Supervisor will show to an outside apathetic people the tragedy of broken lives and clouded minds, and what a comparatively small number of men and women are striving to build back into the mouths of these unfortunates, something of dental health and usefulness.

The charitable group no doubt calls for most of our sympathy inasmuch as they are composed greatly of deficients, with a rather smaller group of normal minor dependents. Our country has not yet solved this mounting problem of restorative care, although some of the unfortunates are being brought out of the darkness to a comparative ease. And with it all is there no assurance that the relapse is not imminent.

The epileptics, the feeble-minded and those of greater abnormalcy comprise the burden that the state must assume and for which it must provide intelligent oversight.

It is a common accusative remark that we of the genus homo have not traveled very far on the high road to civilization. And taking the statement at a comparative face-value without delving after the truth, we might agree in part. With the destructive forces of war becoming more fiendish; the sacredness of life of less moment; the rights of individuals more easily violated; the sancity of home of less value; the perfidy of nations with the destruction of faith in one another, all of these, were one to be pessimistic, might give color to the statement.

But somehow or other comes a light shining throuugh this miserere, and we find men and women of big heart and mind, willing to work to bring into a nation and state, laws that alleviate misery of all kinds. And we say, that being the case, such things as Departments of Public Welfare, come into being to protect the weak, build up the sick of all types, give unction to the incurable, and by a system of scientific investigation, sociologic, psychologic, and psychiatric, beat down criminal tendencies yet in their incipiency, then it must be true that our civilization is happily far along on its journey.

We are glad that men and women in our profession, and the medical as well, have, in conjunction with the urge to follow their vocation as a livelihood, a greater humanitarian urge to succor the weak and dependent. To them, be it said, it is a sacrifice but a glorified one, for to be an "envelope dentist" detracts largely from the dignity of pursuit that is inalienable. All are not fitted for this work. It has its dark sides, discouragements, conditions where co-operation of patient is absent. The wonder is that the work is done as well as it is, or at all.

We whole-heartedly offer our commendation to the Department of Public Welfare of Illinois and these dental soldiers of duty for their untiring efforts, remembering it was said: "Inasmuch as ye have done it unto the least of these, my children, ye have done it unto Me."

DENTAL HEALTH TALKS

From the Illinois Department of Public Health and Committee on Mouth Hygiene and Public Instruction Illinois State Dental Society

PUBLIC health activities coupled with modern scientific preventive methods have been responsible for the noticeable decrease in a number of the children's diseases. But, with all the great progress that has been made in this connection, the general hazard is still too great to be personally disregarded. The first line of defense having been erected in the form of vaccination, toxin antitoxin and control of public water and milk supplies, the second, represented by general vitality, should follow as a matter of course. Indeed, the two barriers should be raised simultaneously.

It is a well-known scientific fact that, speaking generally, the healthier the body, the greater its ability to ward off disease, or the more able successfully to wage battle with it, if overtaken. And this medical axiom applies equally to youngsters and oldsters.

Unhealthy teeth in the mouth of the child are quite likely to effect its general well-being and make it susceptible to disease killers. Not to mention the unhappiness, if not actual misery, which is likely to attend such a condition.

Parents therefore should need no further argument to convince them of their duty to see that the baby teeth are properly cared for. First teeth that are permitted to decay is evidence of an unjustified speculation on the parent's part. Nature insists that the young teeth be properly nourished, cleaned, and repaired if in need of it. Not to follow this rule is distinctly inviting trouble.

The sooner the public can be made to understand the vital importance of bestowing in terms of nourishment, cleaning and dental service, as much care upon the baby teeth as should be given to the final set, just that soon, but no sooner, will the power of the children's diseases and many maladies of later life, be removed in hundreds of thousands of cases. Public health officials can exhort, physicians and dentists can and do advise, but the individual alone can act.

What kind of teeth does your baby have —if you have one?

THE modern idea is to do things in a hurry "to save time." People rush hither and thither and speed up their activities to a sixty-mile-an-hour gait, presumably under the impression that motion is achievement. In this respect they imitate the squirrel who runs to the point of exhaustion in his revolving cage and who finds himself at the exact spot from which he started at the conclusion of his heart-breaking exertion. Indeed, this speed mania has made such inroads that many people habitually bolt their food. The art of proper mastication for them has to all intents and purposes been lost. It is little wonder, then, that in addition to the development of digestive disturbances and kindred ills, they do not become enthusiastic over the problem of proper mastication for their children.

If persons insist on using soft foods exclusively, they have a right to expect diseased teeth. And, as a matter of fact, this general practice is more responsible for dental defects than any other one factor. But it certainly does not follow that grown-ups have any right to become careless regarding the masticating habits of their youngsters. Really, it is criminal to do so.

Young children, like other animals, are likely to swallow most anything. Chewing to them is a secondary process, and therefore must be defintely encouraged. When the time has arrived for the use of hard food (and this time is at the beginning of the teething period), the baby should be given dry toast zweiback or a bread crust. The masticating function must be daily employed if sound teeth and sturdy supporting tissue is to be formed.

Therefore, in spite of one's personal indifference to mastication, one should be forever on the job to see that the children thoroughly chew all the food they eat. General health, jaw and tooth development absolutely require that this be done.

And while on the subject of eating, it should not be forgotten that the mineral salts and vitamins, so necessary to tooth health and bone growth, are to be found in the leafy vegetables, fruits, cereals and in milk. Remember, too, that raw vegetables, coarse foods and fruits are excellent teeth cleansers.

The final point to be stressed is that no grown person should fool himself into the idea that he can not afford the time to chew his food.

Therefore, while daily disciplining the youngsters in the mastication process, see that you practice what you preach. Dental and general health will be satisfied with no less.

"Are you developing a graveyard in your mouth? Many people already have them. And neglect was likely the cause. Of course, very few individuals would deliberately 'kill' teeth, but the slaughter is no less a fact even though a willful premeditation on the subject's part be altogether absent. Strictly speaking, it is the exceptional individual who knowingly permits his teeth to 'go to the dogs.' The point is that the helpless and infected tooth is very likely to get into that condition before the victim is seriously aware of it. It must be remembered that many of nature's destructive processes are not associated with pain or discomfort.

"The living soft tissue of a tooth is known as pulp. It consists of the nerves and blood vessels as well as of the soft tissues lining the inside surfaces of the tooth. These latter act as a conductor for the tiny blood vessels and nerves. This is nature's miraculous method of giving life to teeth.

"When for any reason such as irritation, exposure or decay this pulp becomes injured, it expands and literally chokes itself to death. The nourishing blood supply is thus cut off and the process of decomposition at once begins.

"Pulpless teeth are not pretty, as they become discolored. But the significant fact is that even though the decaying tissue is removed and the cavity sterilized and filled, it is not always possible to preserve the tooth. The chances of abscess formation at the root end are great. And abscesses sooner or later mean trouble.

"While pulpless teeth in themselves are bad enough, their power to inflict harm to the general health is well demonstrated by the many thousands of illnesses and deaths for which they have been directly to blame.

"Therefore, if you have no pulpless teeth, do everything in your power to stay away from them. If perchance you are already harboring them, they should be carefully checked at least twice a year by the dentist. It does not pay to temporize with conditions that develop helpless teeth, or with pulpless teeth themselves."

"The question has been frequently asked, 'How is it possible for one to have abscessed teeth for a comparatively long time, and not suffer any ill effects from them?' Indeed, this thought has been so generally considered that many people answer it to suit their own taste. And this frequently manifests itself in doing nothing about it if they have bad teeth themselves.

"Arguing that, having possessed abscessed teeth for several years and no apparent harm having come of them, they can safely continue to play host to this condition, has caused many persons to disregard the dentist's advice regarding them even after x-ray proof has been offered of their existence. The point is that an abscessed tooth is a very dangerous enemy. It may be necessary to remove it immediately. Delay may result in serious illness. It may even end in death.

"To answer the question regarding the apparent harmlessness of some abscessed teeth over a period of time, it must be understood that the decomposition processes associated with the pulp (the blood

vessels, nerves and membrane, lining the inner surfaces of the roots) immediately invite bacteria. These organisms manufacture toxins. If general bodily health is good, the blood manufactures neutralizers which it carries to all portions of the system, thus holding the damaging bacteria in check.

"The rule of 'checks and balances' is thus beautifully demonstrated. But in the end the demonstration will fail. And the price of the inexcusable neglect will be impaired health and perhaps death.

"Personal daily care and regular dental attention will save many a tooth from becoming abscessed in the first instance. But the point to be stressed is that if the dentist condemns a tooth because of an abscess at its root, have it extracted promptly. Run no chances with delay."

"Newspapers and magazines frequently carry the statement that the span of life has been increased more than fifteen years within the last twenty. Literally they are correct. Nevertheless, an assertion of this kind is likely to be very misleading. When one comes to analyze the matter, it is promptly discovered that the advantage has been gained in the age group from one to forty only. That is to say, babies today on the average may expect to live fifteen to twenty years longer than they did two decades ago. On the other hand, the person of middle life can not boast even of a year's longer life than formerly. And for this unfortunate situation heart conditions are as much and perhaps more to blame than is any other.

"Back of heart disease is always a cause. And bad teeth and tonsils play a noticeable part in this matter. The relatively clean mouth harbors millions of microscopic organisms, but the neglected mouth is host to hundreds of millions of them! And while at all times nature attempts to fight valiantly, sometimes the odds are too great and she is vanquished. The pity of it is that had nature obtained real co-operation from the individual, victory rather than defeat would have been the result.

"It must be understood that germs at all times must seriously be reckoned with. And the person who deliberately deprives the mouth of the required daily dental care, and who in addition disregards the regular semi-annual visit to the dentist's office, is taking an unjustifiable chance.

"Decayed and abscessed teeth are germ wells. Pumped through the body by the heart and carried in the blood stream, virulent germs frequently find a final resting place in the heart muscles where they multiply, develop strength and then damage that organ to such an extent that serious conditions arise or death itself steps in.

"It can truthfully be said that if the average mature person would be just one-half as much interested in the condition of his mouth—including the teeth, gums and tonsils—as he is in the smooth working performance of his automobile, the present and ever-increasing heart disease toll could be very noticeably reduced.

"Life and this world being so glorious, is it not a shame to bring it to a premature end by way of the heart disease route simply because of inexcusable mouth neglect?"

"The human body is so dependent upon its component parts that a diseased condition in one section, if persisted in, will eventually if not sooner affect the whole. And because of this established fact, physicians who are called upon by their patients to find the cause of their difficulty, are often required to hunt for the so-styled focal point of infection. Otherwise stated, the affliction is of such a type that the reason for its existence is not evident on the surface. Under circumstances of this character, the doctor invariably insists that the teeth and tonsils come under proper investigation.

"And in this connection, just the other day a case of blindness in a local hospital was directly traced to diseased and neglected teeth. It no doubt seems queer to be told that bad teeth may make bad eyes. Nevertheless, this statement is quite true.

"For example, hundreds of instances could be cited where a chronic condition

of the antrum (the hollow bone beside the nose and under the cheek) has caused blindness by its sudden flaring up. And for this unexpected activity the germs of diseased teeth or tonsils were solely to blame.

"Short of death itself, no greater price can be paid for mouth and dental neglect than the loss of sight. It is foolish to run this risk, comparatively remote as it may be to the average person, when all that is required is the daily application of commonsense care. A few minutes in the twenty-four hours set aside for properly brushing the teeth (after each meal and before going to bed), and proper supervision of the mouth by the dentist, develops a security against so many serious conditions that no argument urging such a program should be required.

"However, the fact that there are no doubt millions in the United States today —a country, by the way, that pays more attention to its teeth than does any other in the world—who brush their teeth scarcely at all and seek a dentist only when in pain, justifies the warning that infected teeth not only harm eyes, but have the power in many instances to slay as well.

"Traveling the road of life but once should make everyone desirous of making as long a journey as possible in the healthiest kind of a condition. Remember that brevity and suffering go hand in hand with diseased teeth and mouth and throat infections. Avoid them!"

"The Fourth of July usually brings a thrill to the average citizen. Justly proud of America's place in history and of its pre-eminent advantages, patriotic emotion manifests itself on the nation's birthday. However, even on Fourths of July, people are inclined to take the national blessings too much for granted. They fail properly to appreciate the significant fact that this country was not made in a day, any more than was Rome. This observation, in a limited sense, may be applied to the mature mouth.

"We are informed that threescore years and ten are about all that one may expect in this life. And yet nearly one-fourth of that time is required to complete the construction of the mouth in its final form. One would suppose that such a prolonged job would inspire real co-operation. Eighteen years seem a long time for nature to be actually interested in a person's mouth. But the vast majority of people let her go it alone. Putting the entire responsibility on nature, they remain blissfully non-co-operative—until pain arrives. Then, true to type, they growl and sometimes howl. Finally, with great reluctance they go to a dentist to have the offending tooth pulled out—frequently the first step down the false-teeth road.

"Decidedly, nature deserves a squarer deal than this. She asks, and should receive, as much care and attention as would be given to the construction of an expensive dwelling. It must be understood that great changes occur in the mouth from the sixth to the eighteenth year. It is during this period that the infant teeth are shed and the permanent ones take their position in the dental arch. The importance of guarding against irregularity of the jaw and of fighting the factors that lead to decay at once becomes apparent. And this problem Dame Nature in some measure puts up to the individual, or the individual's guardian, to solve.

"In this connection, proper diet from birth to the sixteenth year is an absolute essential. Thorough cleansing is equally important. And periodical visits to the dentist also represent a requirement that can not safely be ignored.

"Remember, that unlike Topsy, a good set of teeth does not just grow even though eighteen years are consumed in the process. Nature asks personal cooperation. Not receiving it, she inevitably backfires. Therefore, don't wait 'til it hurts. Cooperate!"

A NATIONAL DENTAL MUSEUM

At the meeting of the American Dental Association in 1930 at Denver a committee was appointed to study the feasibility of arranging a museum to house exhibits of interest to dentistry.

When the committee entered upon their duties it was discovered that many years ago, 1885 to be exact, the then National Dental Association had by resolution designated the Army Medical Museum at Washington, D. C., as the official depository for the dental profession of the United States.

A meeting with the Surgeon General of the United States Army and the committee was arranged and he heartily approved of a plan to reawaken interest in the dental division of the Museum.

Plans were shown at this meeting detailing the project which the government was preparing, to build a new museum and library at the Army Medical Centre in Washington.

The space assigned to the Dental Museum was designed to occupy about five times as much floor area as in the present building.

The Committee on Museum then made a report to the American Dental Association in 1931 at Memphis and their recommendations were, that the American Dental Association revive interest in this Museum and make it the center of activities for this work in the United States.

This suggestion met with the approval of the Board of Trustees and the House of Delegates, and the Committee was directed to continue their activities and arouse the interest of the dental profession in this Museum to the end that they would send specimens for classification, study or exhibit.

The profession is urged to send any such material, either anatomical, casts anomalies or historical specimens to the Curator Army Medical Museum, Dental Division, Washington, D. C.

As rapidly as specimens are received they will be classified and indexed.

The Museum has facilities for accommodating properly accredited students, who may have access to the specimens arranged for study and also to thousands of slides of pathological specimens.

It is hoped that the profession throughout the country will renew their interest in the Museum and give it their support.

SECTION ON STOMATOLOGY AT SESSION, AMERICAN CONGRESS OF PHYSICAL THERAPY

The eleventh annual scientific session of the American Congress of Physical Therapy will be held at the Hotel New Yorker, New York, September 6, 7, 8, and 9, 1932. A section on stomatology has been organized and on September 9 a full day's program will be offered in this specialty.

The borderline specialties of medicine and dentistry have been active in the stomatologic movement. While progress has been made with physical therapy in the newer field, greater achievement will, no doubt, be forthcoming in the future. It is, therefore, timely that the Congress sponsor this new section to enable scientific workers to present the results of their researches and otherwise discuss problems of common interest pertaining to light, heat and electricity as therapeutic measures in dental practice.

In the organization of a Section on Stomatology, the Congress is broadening its scope. It has always included papers and addresses in this field on its program in the section on Otolaryngology. Now, however, a demand exists for the organization of a distinct group.

The Section on Stomatology will offer in addition to a full day's program of papers and addresses on September 9, a series of clinics in several New York Institutions. The announcement of these clinics will be made in due time.

For those seeking fundamental information on the uses of physical measures, the Congress offers an unusual opportunity in its other sections on *medicine, surgery, eye, ear, nose* and *throat*. Prominent guest speakers from abroad include Dr. F. Howard Humphris, of London, an authority on physical therapy. There will be other out-

standing clinicians and teachers from the leading medical centers in this country are on the program.

The scientific and technical exhibits will be instructive. In addition such special features as round table talks, informal clinical conferences, demonstrations and clinical address will prove interesting.

Among others who will participate in the scientific program of the Section on Stomatology, the following have already accepted to present papers, clinics, etc.

Dr. Leo Winter, Professor of Oral Surgery, New York University College of Dentistry, Visiting Dental Surgeon in Charge, Bellevue Hospital.

Dr. Louis V. Hayes, Associate Visiting Dental Surgeon, Bellevue Hospital, Assistant Professor of Oral Surgery, New York University, College of Dentistry.

Dr. Irving Salmon, Oral Surgeon, Montefiore Hospital.

Dr. John F. X. Murphy, St. Vincent's Hospital.

Dr. C. Raymond Wells, Chairman Oral Surgery Section, 2nd District Dental Society, Brooklyn, N. Y.

Dr. E. Lester Jones, Stomatologist, Holding Clinic Memorial Hospital, Albany, N. Y.

Dr. Robert T. Reade, Chairman, Public Dental Health Committee, Toronto, Can.

Dr. I. Folstein, New York City.

Dr. Alfred J. Asgis, Assistant Visiting Dental Surgeon, Bellevue Hospital.

Dental surgeons are eligible for full qualified membership in the Congress with the same standing as are physicians, surgeons and other medical specialists, and are invited to attend the sessions and clinics. Dr. Norman E. Titus of New York is the Local Chairman of the Convention Committee. Dr. Alfred J. Asgis of New York is Chairman of the Section on Stomatology. Requests for program should be addressed to the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Ill. For further particulars pertaining to the Section on Stomatology, communicate with Dr. Alfred J. Asgis, *Chairman*, Section on Stomatology, 243 West 70th Street, New York City.

HANGING ON BY THE EYE-BROWS

I am enclosing $4.00 on my account that is much past due, but wish to inform you that the present shattered condition of my bank account makes it impossible for me to send you my check in full in response to your request.

My present financial condition is due to the effect of the Federal laws, State laws, County laws, Incorporation laws, By-laws, brothers-in-law, mothers-in-law and outlaws that have been foisted upon an unsuspecting public. Through these various laws I have been held down, held up, sat on, walked on, flattened and broke until I do not know what I am, where I am, or why I am.

These laws compel me to pay a Merchant's tax, Capital tax, Income tax, Incorporation tax, Real Estate tax, Auto tax, Property tax, Gas tax, Light tax, Water tax, Cigarette tax, School tax, Syntax, Liquor tax, and Carpet tax.

In addition to the laws, I am requested and required to contribute to every society and organization that the inventive mind of man can invent. Give to the Society of St. John the Baptist, the Woman's Relief, Navy League, the Children's Home, the Pro-German's Benefit, the Dorcas Society, the Y. M. C. A., the Gold Diggers' Home, also to every Hospital and Charitable Institution in town, the Red Cross, the Black Cross, the White Cross, the Purple Cross, the Flaming Cross and the Double Cross.

The Government has governed my business so that I do not know who owns it. I am suspected, inspected, disrespected, examined, reexamined, informed, required, commanded and compelled until all I know is that I am supposed to provide an inexhaustible supply of money for every known and unknown need, desire or hope of the human race, and because I refuse to donate to all and then go out and beg, borrow or steal the money to give away, I am ousted cussed, discussed, boycotted, talked to, talked about, held up, held down, and

robbed until I am just about ruined.

The only reason that I am clinging to life at all is to see what the hell is coming next.

Note—The editor did not write this. It is too deep for his fecundent pen. Keep matches away from it.

"IT HAPPENED IN NEW ZEALAND"

The patient sits in the Dentist's chair,
The tools of torture all gleaming there:
There's a basin of glass with a water spate
In case he should wish to expectorate.

Dentists' chairs, as perhaps you know,
Screw upwards and downwards and back and fro;
This is that Dentists may work as they please,
Not that the patient may lie at his ease.

A cabinet swings on an easel but
All of its drawers are tactfully shut
For fear that the wretched victim may
Observe what they hold and steal away.

The Dentist, clad in a suit of white,
Hovers around like an evil sprite;
While a gentle nurse in a linen dress
Lends an air of preparedness.

The Dentist smiles:—One can't think how;
Approaching the victim he murmurs "Now,"
And says as he looks at your aching teeth,
"The top ones are worse than those underneath;

"Now I'd recommend":—That's how it goes;
Your courage is oozing away to your toes,
You say "Very well" with feeblest of grins
And that is how your trouble begins.

He drills and he grinds, with probes he pries
Down where your tenderest nerve-spot lies,
When you think there's a chance of slinking away
He fixes a date for a further day.

Days and days pass slowly by;
Still on that cheerless chair you lie;
You say to yourself that all things pass
As you rinse your mouth from the drinking glass.

At long long last you leave the chair
Feeling you've spent a lifetime there;
And you've just a doubt if his words rang true:—
"It's hurting me more than it's hurting you."

JAMES BRAGG.

Sidney, Australia.

EDITOR'S NOTE.—This poetic minstrelsy came all the way from Wellington, New Zealand, and is from the fertile brain of an Englishman. ("I say now old chap!") Dr. Eric Caro of the above-named place, a friend of "C. N.'s" sent it on and it has fallen in pleasant places. Sometimes "doncha know," a State Journal becomes the recipient of the crumbs that fall from the rich man's table (A. D. A.).

We do not in the least desire to make an obnoxious comparison when using the word "crumbs," but it seemed so apropos and we were really at a loss for a better illustration, having only in mind that the Editor of the A. D. A. let it slide off his desk onto ours, due to an overabundance of the Buffalo meeting propaganda that he had to convert into reading matter, pronto.

We used the word "minstrelsy" advisedly for some place in this effusion he speaks of "where the tenderest nerve-spot lies," and me thinks that's just about the place where the singing would be the most vociferous.

We compliment James Bragg, Englishman, for this delicate description of all things dental. In spite of expectancies which seems to be universal, he grabbed off a wink or two at the dental nurse which also seems to be universal. Understand, Mr. Bragg, we are not fault-finding in the least, for when a man is non-observant in that direction, he is *old*, no question about it. Grant us the privilege, dear sir, of believing this.

We are glad to have the honor of publishing this poem, for now we know our JOURNAL is going across the seas, a wish

long devoutly hoped for. (Dr. Caro has asked that it be sent.)

Unfortunately, it came unnamed, due no doubt to the excitement of getting it on the first boat out. So we have given it a name, and may it be an inspiration to further effort.

STARLIGHT CAN BE STORED AND ULTRA VIOLET METERED!

Light from the star Arcturus can be used as the motive power for opening the 1933 Chicago World's Fair, even if the opening night is cloudy.

This assurance was given to exposition officials by Dr. Harvey C. Rentschler, research director of the Westinghouse Lamp Company.

The light can be captured on a clear night, he said, and kept in cold storage until wanted. The method would be to take the light directly from the star through the Yerkes telescope, trap it by absorption in a phosphorescent substance, and freeze it in liquid air. Then it can be released at will.

Fair officials selected Arcturus because it takes forty years for light to travel from there to the earth—so that a ray which left the star at the opening of the last World's Fair, in 1893, will arrive just in time for the new exposition.

Heretofore physicians prescribing sunlamp treatments for the varying needs of patients have been embarrassed by the lack of an accurate device for measuring the dose.

Now there is a "teaspoon," so to speak, for measuring a "dose" of the ultraviolet the doctor ordered.

Dr. Rentschler used a uranium wire, glowing under a correx glass, with a meter which ticks—ticks fast when the current of ultraviolet is great, ticks slow when it diminishes.

With the new dose-meter, plus the doctor's instructions, it is promised that the patient will be able to get the full benefit of the treatment and escape the burns which hitherto have been hard to avoid.

SIX MILLION CHILDREN UNDERNOURISHED

The reports of the White House Conference submitted during 1930 and 1931 revealed the startling fact that out of 45,000,000 children in this country 6,000,000 are improperly nourished. Medical, nutritional and other groups contributing to the health and well being of children have been aroused as perhaps never before to the importance of nutrition for the protection of the children and parents of today and tomorrow.

Certainly, then, careful and intelligent food guidance will be advised. We have enough facts so that there need be no theorizing or difference of opinion of what constitutes a balanced diet. It is also of particular importance during these ever-increasing food fads that our boys and girls in school should receive practical and unbiased instruction in the fundamentals of a proper diet.

THEY "KNOW THEIR ONIONS"—AND FADS

The great American public was pictured as its own worst enemy in trying to improve its health.

Discover a new vitamin, and Americans will rush to take it in over-doses.

Point out the advantages of orange juice and they will drink so much they'll ruin their stomachs.

Tell them to drink tomato juice and they'll gulp it by the gallon.

Such was the picture painted by Dr. Morris Fishbein, editor of the Journal of the American Medical Association, in an address recently.

HUMAN CAPACITY

"The American people are given to 'all or nothing' policies in what they do for health," Dr. Fishbein said.

"It must be realized that the human being can take not more than 6,000 calories per day, that the average man eats 4,000, and that probably 3,000 are sufficient. These must include all the necessary food substances, and it is safe to say that the essentials will be taken in the vast ma-

jority of cases by anyone who eats a well-balanced diet, including meats, fruits, cereals, vegetables, milk and eggs."

Dr. Fishbein denounced "commercial exploiters" of credulous Americans.

"Whenever a new discovery is made in the field of science," he said, "commercial exploiters are ready to adopt that discovery for their personal gain.

"The furore associated with the discovery of the vitamins has made the word itself one with which to conjure. This spring tonic of the past, containing sulphur and molasses, the iron, quinine and strychnine, which has been for years the staple tonic of the dispensaries and even such patent medicine tonics as depended primarily on old John Barleycorn for the impetus they gave to a sluggish circulation and a lassitudinous mind, have given way to the vitamin tonic and the health food.

Warns Against Roughage

"For several years the public has been besieged with claims made for products containing various amounts of bran and cellulose. It has been argued that such foods are wholesome, in that they overcome constipation and relieve the associated symptoms.

"On the other hand, competent gastroenterologists are convinced that too much roughage in the diet will irritate the gastrointestinal tract, and that its use may be exceedingly harmful in cases of ulcer of the stomach or duodenum and in cases of colitis."—Nat'l Food Bureau.

ANTRUM OF HIGHMORE

Nathaniel Highmore, in 1651, was the first to point out the anatomical relation between the teeth and antrum. A lady, having much pain in her teeth, finally had the upper canine tooth extracted after which there was an incessant flow of humors (pus) from the antrum. The patient herself wishing to learn the cause, passed a silver probe into the cavity its entire length, which produced the effect of its having reached the eye. Much amazed she stripped a long feather and passed it into the opening so great a distance that she concluded it had reached her brain, not knowing the feather simply curled up in the cavity. Highmore allayed her fears by describing to her the exact anatomical nature of the structures involved.

WHAT EVERY DENTIST SHOULD KNOW ABOUT ULTRAVIOLET

Every dentist, whether ready to use Ultraviolet energy in his practice or not, should familiarize himself with it and its possibilities, if for no other reason than to intelligently discuss it with those of his patients who may ask about it.

Ultraviolet energy, of value therapeutically, as generated by quartz mercury lamps, should not be confused with "Violet Rays" of visible light nor the so-called "carbon arc" of the home treatment type; nor that part of ultraviolet which is not of therapeutic value, although showing other phenomena peculiar to the action of ultraviolet.

Ultraviolet is a band of rays found beyond the violet of the visible spectrum and certain portions of this band of ultraviolet are of known therapeutic value to the dental and medical profession.

Quartz mercury lamps are most efficient in generating this useful portion of ultraviolet energy and furnish rays having a bacteriocidal effect impossible to secure from the sun's rays at earth distance even under the most ideal conditions. While the rays so generated are bactericidal in effect, they have at the same time a stimulative effect on bone and tissue cells, and are an effective prophylactic and analgesic agent in edema (swelling), post operative pain and post operative infection, or in fact wherever infection is present.

The heat generated by the Quartz burner in creating ultraviolet of sufficient intensity, is dissipated by a water cooling arrangement, to enable the lamp to be used close to the face for local treatments, in the oral region.

One means of confining the ultraviolet energy of a water-cooled lamp to the area under treatment is by the use of localizers. —*Dentogram.*

SOCIETY ANNOUNCEMENTS

THE 174TH REGIMENTAL ARMORY

When you come to Buffalo in September to the 74th Annaul Meeting of the American Dental Association, you will find the Convention Hall one of the largest and most beautiful you have ever seen. Buffalo's active Committee on Arrangements has succeeded in obtaining the use of the 174th Regimental Armory for this most important meeting. Built to accommodate thousands of people, this attractive building will be ideal for the meeting.

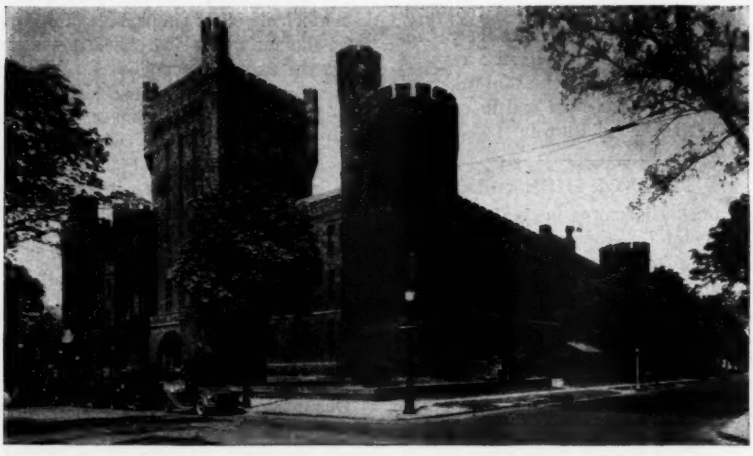
The Armory building covers a large city block and contains ample room for all the meetings and exhibits of the Convention. In front there is a beautiful city park. Cool breezes from the nearby lakeside sweep over the entire area. Several blocks away is the entrance to the Peace Bridge, opening the way to the Canadian frontier. From the Convention Hall the downtown hotels may be reached in five minutes.

The clinics this year will be a feature of the convention program well worth your time. All the latest methods for safeguarding the nation's teeth will be shown. Dentists of international reputation will give demonstrations of their work.

Representatives of health boards from nearly every state in the Union will have exhibits of the work in dentistry that is being carried on in their State. The Health Exhibits program will be the largest and best in years.

In the commercial exhibits the manufacturers allied with dentistry will come to show the world in their exhibits that American products still dominate the field of international dentistry. Exhibits in this display will be valued at more than a million dollars. Makers of apparatus which has been used in the George Eastman dental clinics in London, Rome and Stockholm will have equipment represented.

So pack up your bag and come ON TO BUFFALO to the banner meeting of the American Dental Association.



174TH REGIMENTAL ARMORY, BUFFALO

REPORT OF A STATE SOCIETY STUDY CLUB

After careful survey of the different sections of the state through members of this committee and interested men of the society, we found it impractical this year to carry out a very extensive program of Study Clubs. Probably the financial state of affairs had much to do with these findings. However, the idea of Post Graduate Courses made available to the membership at large was very graciously received.

MEMBERS WHO ATTENDED STUDY CLUB HELD AT URBANA, APRIL 28, 1932

We are glad to report one very successful study Class conducted at Urbana, April 28, 1932. Through the untiring and enthusiastic work of Dr. Homer Peer, a member of this committee, a group of thirty-four men paid their fee and requested a program. Your chairman secured the following program for the occasion:

POST GRADUATE PROGRAM

Subject—Diagnosis and Oral Surgery

Hours

10:00 Dr. P. G. Puterbaugh — Lantern lecture on Local and Conductive Anesthesia.

1:00 Dr. George C. Pike—Preparation of Mouths for the Reception of Dentures. Models and Lantern slides.

2:00 Dr. George C. Pike and P. G. Puterbaugh — Surgical clinic on mouth preparation for dentures.

3:00 Dr. W. H. Willman—Radiographic Interpretation and the Diagnosis and Treatment of Pyorrhea Alveolaris.

7:30 Dr. P. G. Puterbaugh — The removal of impacted teeth and the Surgical Treatment of Cysts, Tumors, Hyperplastic Tissues, Maxillary Sinusitis and Mandibular Fractures.

The speakers furnished the lantern, slides and a patient for surgical clinic.

Arrangements were made to hold the class in the Elk's Club at Urbana. A chair and equipment was furnished by one of the local hospitals and the accommodations and settings were perfect. Even the weather man furnished us with one of the most beautiful warm sunshiny spring days typical of the midstate at this time of the year.

The program was given by the three men as outlined above. I can truthfully say I have never before attended a dental session where more real and helpful knowledge was imparted and more interest shown

than was given during this day and evening session. All three men assumed their role as teachers and equally arose to the occasion.

When these members signed up for the class, a fee of $5.00 each was collected to defray the expenses, and for a small honorarium to the speakers. At the close of the session, after deducting all expenses, we found it possible to return $1.00 to each member of the class making his total fee $4.00. According to the expression of those present at the close of the session and sentiments expressed by letters since, every man without exception felt he had been well repaid for the small fee and the time out of his office.

The Committee wishes to so arrange the courses next year that they may be available to more members and if possible, at a very much less cost.

E. E. GRAHAM, *Chicago,*
Chairman of State Study Club Committee.

RADIOTHERMY

BY GOBIND BEHARI LAL

Dr. Willis R. Whitney, director of research of the General Electric laboratories, told the International Electrical Congress, which has just finished an eight-day session in Paris, what radiothermy can accomplish.

Radiothermy is treatment of certain diseases by passing through the body short-length radio waves. Since heat is generated and fever is produced, the apparatus used is colloquially known as the fever machine.

* * *

Artificial fever can be produced and controlled, the increase in temperature being as much as 8.5 degrees Fahrenheit. That is, a fever of more than 106 degrees can be produced and brought down as desired.

What this heating of the internal body economy does, it seems, is to kill disease germs and, possibly, increase the natural resistance of the body. Dr. Whitney mentioned especially the excellent results obtained in treating paresis and arthritis.

Dr. Wagner-Jauregg, of Vienna, had cured some paresis cases by giving the patients malarial fever. According to Dr. Whitney the short radio waves can do the same thing, and very much better. The New York State Psychiatric Institute has tried it and found the results satisfactory.

* * *

Beneficial results obtained in arthritis cases are reported by several physicians. "Dr. Schliephake has recently published accounts of favorable experiments on surface malformations, such as carbuncles, and on such swellings of joints as occur in certain arthritis troubles."

According to Dr. Whitney, it is possible now to produce fever only in a particular region of the body, such as an arm or leg.

* * *

Dr. W. D. Coolidge, the maker of a 900,000-volt cathode rays tube, gave a long list of many practical uses of cathode rays that come out of the tube. By a cathode ray is meant a beam of fast-moving electrons, each electron being a unit particle of electricity.

Under the action of cathode rays many substances like glass and chemical salts change colors.

In fact, glass can be permanently colored by cathode radiation. Spectacle lenses can be tinted to any hue, to match one's hair, eyes or teeth. Glass turns purple if it has manganese, and brown if it is lead glass.

Common salt changes from orange to brown, depending upon how long the exposure is. Rock salt crystals become black.

* * *

Baensch and Finsterbusch cured certain skin diseases such as carcinoma and tuberculosis of the skin and chronic eczema with cathode rays.

These rays, like X-rays, cause the rise of new species when the germ cells or seeds of plants or animals are exposed to them.

SILVER IS UP

"Gold is down—All persons requiring artificial teeth should visit the show room of the American Artificial Teeth Company Dentists, 51 East Fourth Street, corner of Bowery."—*Advertisement in New York Herald, April 15, 1865.*

Official Transactions of the 1932 Meeting

A change in the customary publication of the 1932 volume of the Transactions of the Illinois State Dental Society is authorized by the Executive Council, and the price of the volume is reduced.

Manuscripts and essays formerly printed in the Transactions will be published in this Journal. All other records and proceedings will be contained in the Transactions as usual.

Binding will be of two types. The usual cloth binding, to harmonize with the preceding volumes, at $1.50 per copy—and a paper binding at $1.00 per copy.

In ordering the 1932 Transactions please indicate your choice of binding and enclose remittance. A copy will be sent as soon as published. Please use order blank below and mail at once.

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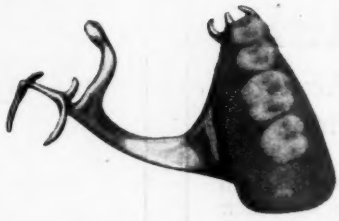

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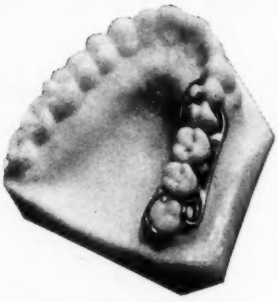

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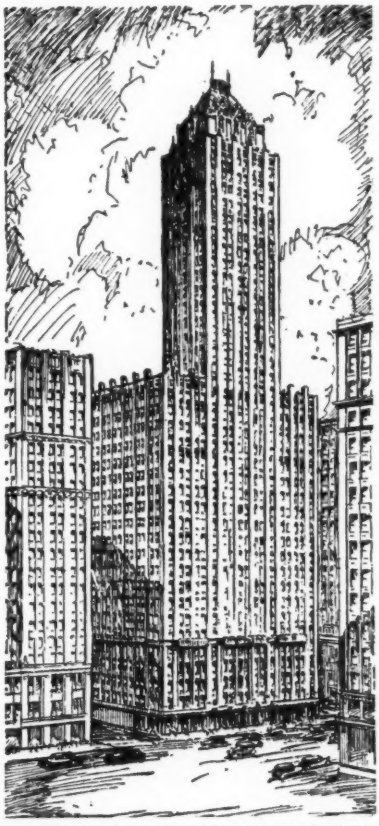

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